

GARMENT TRIALS - 2

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REVERSE DRYING

## INTRODUCTION

As a result of the British Home Stores case study carried out in 1984, we were able to obtain a small set of garments for use in our second garment trial investigation, as a follow up to Research Record No. 187.

As mentioned in the first garment trial amongst our objectives will be to evaluate the variation of the quality of garment make-up, effect of laundering and the variation in size.

## TESTING

We were supplied with twenty four garments all of the same construction and style which included three different sizes and colours. The construction was the same for all garments: 14 gauge 1 x 1 rib.

The garments were ladies round neck, short sleeve T-shirts, sizes 10-12, 14-16, 18-20. Size 10-12 were numbered 1-8, size 14-16 were numbered 9-16 and sizes 18-20 numbered 17-24, there being eight garments in each size.

The garments were separated into five sets (5 garments in each of the laundered sets and 4 retained for full tests).

- SET 1 - retained for full tests
- SET 2 - washed at 60°C and line dried
- SET 3 - washes at 60°C and tumble dried
- SET 4 - washed at 60°C, line dried and pressed
- SET 5 - washed at 60°C. tumble dried and pressed

Set 1 was tested under normal laboratory conditions for chest size, weight, courses, wales, stitch length, yarn count, spirality, SES, % Ext., thickness, and colour (R.G.B).

In the previous garment trial two sets of shrinkage measurements were made on each garment. One set recorded actual garment shrinkage and the second set recorded fabric shrinkage within the garment. Both sets of results were very similar. On this evidence only one set of measurements were made. It was decided to record the actual garment measurements as this would give a better evaluation of the actual garment performance.

Sets 2-5 were marked with an indelible pen at the positions shown in Figure 1. Five length (1L → 5L) and five width (1W → 5W) measurements were recorded for each garment. Shrinkage and course/wale measurements were taken after each laundering cycle.

On completion of five laundering cycles on sets 2-5 all drying procedures were reversed and a further 5 cycles were carried out on the same garments. Shrinkage and course/wale measurements were again recorded after each cycle. All garments were measured on the M & S measuring frame after each laundering. The preliminary evaluation of this apparatus and method of test can be found in Research Record No. 195.

The previous trial showed there was a minimal progression of shrinkage between 5 and 10 washes, therefore it was decided to stop at 5 wash cycles and then do a further

5 launderings reversing the drying procedure. It was decided to carry out this reverse drying process to see if it was possible to recover any shrinkage introduced in tumbling. Also it would give an indication on how the garments would behave under 'normal' home launderings, where many consumers would be alternating line and tumble drying.

After all the laundering cycles were completed all garments were tested for weight, courses, wales, stitch length, yarn count, spirality, SES, % Ext., thickness and colour (R.G.B.).

## RESULTS

The making-up and visual appearance on the whole were good but the following points were noted:

- 1) friction marks were noticed on the back of some garments - done in finishing
- 2) noticeable loss of colour, especially on the peach and green garments
- 3) sleeves twisted slightly, making measuring difficult
- 4) body twisted slightly
- 5) one of the garments had a hole in a seam - making up fault

The BHS specification K1 of finished fabric for T-shirts and cotton tops is as follows

Yarn Count	30'scc
Finished stitch length	0.279cm $\pm$ 1.5%
Finished courses/3cm	48 $\pm$ 2.5%
Finished wales/3cm	31 $\pm$ 2.5%
Weight g.s.m.	173 $\pm$ 5%

On comparing this specification with results in Table 1 it can be seen that all the mean values are within the specification. However, the variation of wales within the samples appears to be outside the specification.

Table 2 shows the variation in garment chest measurements as received. The garments are manufactured smaller than the size specified. This requires a certain level of extensibility both as new and also after laundering. Table 3 shows the minimum and maximum % extensions required of the garments to fit the specified size ranges. It can be seen that more extensibility is needed of the larger sizes. The BHS garment specification G states that a minimum of 50% stretch is required for all sizes. However, from the measurements, the maximum extensibility of 28% was all that would be required to fit the nominal sizes. It would be unfair to compare the chest sizes on the garment specification with our measurements as BHS specify the chest width should be measured 2cm below underarm and our measurements were taken directly underarm.

Table 4 shows the reference fit calculated for each garment for the nominal size range. The larger sizes appear to have a slightly smaller reference fit and therefore would be closer fitting.

Table 5 groups the data according to laundering method. The garments which were not pressed have a smaller reference fit which indicates a closer fit after laundering.

Table 6 shows results of the garments tested after all laundering cycles were completed, and Table 7 groups these figures to show the effect of size and type of laundering cycle. The size does not appear to influence the effect of laundering on this

style or construction of garment. However there are less wales and more courses on average in the smaller size and the yarn strength is lower which would indicate a different yarn was used.

The method of laundering only appears to have an effect on courses, thickness and weight.

Tables 8-15 list individual course and wale measurements for each garment measured after each wash, the mean, standard deviation, and % CV are shown after each wash cycle, and the results are summarised in Tables 16-19. The mean values are plotted in Figures 2-5.

### Courses

After the first five laundering cycles there are fewer courses after line drying than tumble drying. Pressing has the effect of reducing the amount of courses, the effect being greater on line dried garments (Figure 2).

Reverse drying has a greater effect on the courses than the wales; garments which were line dried after tumbling recovered nearly all their courses (Figure 3); garments which were tumble dried after line drying relax to a similar level as the tumble dried only stage. The difference between the line dried and the line dried + press garments was still apparent even after the garments had 5 wash and tumble dry cycles.

### Wales

After the first 5 laundering cycles, there were fewer wales (i.e. less total shrinkage) after wash + tumble than after wash, tumble and press. However, on the line dried garments there were fewer wales after pressing (Figure 4).

Reverse drying influenced the garments slightly after pressing, showing that wash, tumble and press followed by wash, line and press reduced the number of wales and wash line and press followed by wash tumble and press increased the number of wales.

### Shrinkage

Tables 20-27 show the individual shrinkage values for each wash. The mean values are summarised in Tables 28-31 and plotted in Figures 6-9.

From these tables and figures it can be seen that on the first 5 cycles, tumble drying the garments increases the shrinkage from line drying by approximately 8 percentage points in the length (Figure 6) and 4 percentage points in the width (Figure 7).

On reversing the drying procedure, the length shrinkage on the tumble dried garments recovered by 5 percentage points. On the line dried garments which were then tumbled the shrinkage was increased by 6 percentage points (Figure 8).

Reversing the drying procedure also had an effect on width shrinkage. Tumble drying the line dried garments increased the shrinkage by, on average, 2 percentage points. However, the variability within the reverse drying cycles was approximately 2 percentage points.

Line drying the tumble dried garments recovered the shrinkage by approximately 2 percentage points and again there was high variability within the wash cycles of approximately 3 percentage points (Figure 9).

On Figures 6 & 7 it can be seen that pressing reduces the amount of shrinkage, the greatest influence being in the length direction after wash, tumble and press. On reverse drying, shown in Figures 8 & 9, the largest effect of recovering shrinkage reverts to the width direction on garments which were wash, line and press after the wash, tumble and press cycles.

Tables 32-35 show individual measurements on the Marks and Spencer measuring frame and these results are summarised in Tables 36 and 37. The mean values are plotted in Figures 10 and 11.

This test is designed to measure the change in garment length after laundering when the original garment width is maintained. The difference between the line and tumble drying shrinkage was reduced by approximately 2 percentage points compared to the shrinkage on the conventionally measured garments. On reversing the drying procedure there was less variability between the cycles than on conventionally measured garments. The line dried garments on tumble drying increased their shrinkage by 5 percentage points. The tumble dried garments, when line dried, recovered their shrinkage by 3 percentage points.

Table 38 shows the percent shrinkage calculated from the change in courses and wales. The comparison between the calculated shrinkage, measured shrinkage, and shrinkage measured on the Marks and Spencer measuring frame is shown in Table 39. In the width direction it can be seen that there were some differences between the calculated and measured shrinkages, especially on the wash and line and wash and press, and wash, line and press garments. In the length direction the differences appeared again on the wash and line garments and remained even after the garments were tumble dried.

The fabric used to manufacture these garments was of the same specification as the fabric evaluated in Research Record No. 189. Using data extracted from this report a prediction of the finished reference state dimensions was made using the IIC-STAR-FISH 84 programme. The prediction can be seen in Table 40 showing that the courses and wales predicted for the finished fabric agree very well with the courses and wales measured on the garments after 5 wash and tumble cycles.

A comparison was also made of shrinkage predicted from the courses and wales as delivered, garment shrinkage and shrinkage measured on the fabric. The comparison in Table 41 shows fairly good agreement between garment and fabric shrinkage. The predicted values give better agreement with the garment figures than the fabric shrinkage results.

## CONCLUSIONS

The garments as received on the whole showed good making-up. The differences between the nominal chest sizes and the actual measured size showed approximately 20% extensibility was required which would indicate a close fitting garment.

Once again it was found that size did not appear to influence the effect of laundering but the type of laundering method had a large effect.

Overall the tumble drying on the first five wash cycles appeared to shrink the garment approximately 4-8 percentage points more than line drying. On the previous trial this was found to be 3-6 percentage points.

Pressing reduced the shrinkage after tumbling in the length by approximately 3 percentage points (1.5% in the previous trial). Pressing after line drying reduced shrinkage by 0.5-1 percentage point. In the width direction pressing reduced the shrinkage after line and tumble drying by approximately 1.3 percentage points.

The reversed drying procedure had the greatest effect on length shrinkage:-

Line drying → tumble drying shrinkage was increased by approx. 6%  
Tumble drying → line drying shrinkage was reduced by approx. 5%

In the width direction the effect was less than half of the difference in the length direction:-

Line drying → tumble drying shrinkage was increased by approx. 2%  
Tumble drying → line drying was reduced by approx. 2%

The Marks and Spencer measuring frame results showed on average, fairly good correlation with the conventionally measured length shrinkage results and with better reproducibility.

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENTS TESTED AS RECEIVED

SAMPLE NO.	1	2	9	17
CHEST CM.	70	70	80	85.2
WEIGHT G.S.M	174.3	168.7	166	180
COURSES/3CM.	48.1	47.9	48.1	49.2
WALES/3CM.	31	30.8	29.9	32.4
S.L.MM.	2.803	2.798	2.803	2.807
YARN TEX	19.4	19.3	19.1	19.3
SPIRALITY	-3.2	-2.9	0.9	0.5
S.E.S. g.	289.7	279.1	302.6	304.2
% EXT.	7.4	7.7	6.7	7.3
THICKNESS	902.5	894.6	909.7	918
RED	64.5	62.5	9.2	40.5
GREEN	52.6	50.7	16.8	41
BLUE	39.1	36.9	42.4	31

\*\*\* ROW STATISTICS \*\*\*

	N	Mean	SD	CV%
WEIGHT G.S.M	4	172.2500	6.2164	3.61
COURSES/3CM.	4	48.3250	0.5909	1.22
WALES/3CM.	4	31.0250	1.0340	3.33
S.L.MM.	4	2.8028	0.0037	0.13
YARN TEX	4	19.2750	0.1258	0.65
SPIRALITY	4	-1.1750	2.1747	185.08
S.E.S. g.	4	283.9000	11.6104	4.02
% EXT.	4	7.0750	0.4193	5.76
THICKNESS	4	906.2000	9.9957	1.10

AS RECEIVED CHEST MEASUREMENTS ON BHS GARMENTS

81-86		91-97		102-107	
Sample No.	Meas. Size cm	Sample No.	Meas. Size cm	Sample No.	Meas. Size cm
1	70	9	80	17	85.2
2	70	10	78.4	18	85.4
3	70.8	11	78	19	84
4	71.4	12	79	20	86.6
5	71	13	80	21	85.2
6	71.8	14	81	22	84.2
7	72	15	77.4	23	86.6
8	71	16	78.6	24	85.6
$\bar{x}=71$ Std. Dev. 0.74		$\bar{x}=79.1$ Std. Dev. 1.2		$\bar{x}=85.4$ Std. Dev. 0.95	



## BHS GARMENTS - CHEST MEASUREMENTS AS RECEIVED

Sample No.	SPECIFIED SIZE RANGE 81-86 (10/12)		Max Ext. %	
	Meas. Size cm	Min Ext. %		
1	70	15.7	22.9	
2	70	15.7	22.9	
3	70.8	14.4	21.5	
4	71.4	13.5	20.5	
5	71	14.1	21.1	
6	71.8	12.8	19.8	
7	72	12.5	19.4	
8	71	14.1	21.1	
	$\bar{x}$	71	14.1	21.1
	sd	0.74	1.2	1.3
	SPECIFIED SIZE RANGE 91-97 (14/16)			
9	80	13.8	21.3	
10	78.4	16.1	23.7	
11	78	16.7	24.4	
12	79	15.2	22.8	
13	80	13.8	21.3	
14	81	12.3	19.8	
15	77.4	17.6	25.3	
16	78.6	15.8	23.4	
	$\bar{x}$	79.1	15.2	22.8
	sd	1.2	1.8	1.8
	SPECIFIED SIZE RANGE 102-107 (18/20)			
17	85.2	19.7	25.6	
18	85.4	19.4	25.3	
19	84	21.4	27.4	
20	86.6	17.8	23.6	
21	85.2	19.7	25.6	
22	84.2	21.1	27.1	
23	86.6	17.8	23.6	
24	85.6	19.2	25	
	$\bar{x}$	84.4	19.5	25.4
	sd	0.95	1.3	1.4

## REFERENCE FIT CALCULATED FOR ALL GARMENTS

24.6 32.3

SAMPLE NO	CHEST AW	LAUNDERING CYCLE	NOMINAL SIZE RANGE	REFERENCE FIT
3	65	L+T	81-86	0.80-0.76
4	64.8	T+L	"	0.80-0.75
5	66	T+L	"	0.81-0.77
6	67.2	LP+TP	"	0.83-0.78
7	68	LP+TP	"	0.84-0.79 $\bar{x}=0.80$
8	67.6	TP+LP	"	0.83-0.79SD=0.03
10	74.4	L+T	91-97	0.82-0.77
11	71.6	L+T	"	0.79-0.74
12	71.2	T+L	"	0.78-0.73
13	71	T+L	"	0.78-0.73
14	75.4	LP+TP	"	0.83-0.78
15	71.6	TP+LP	"	0.79-0.74 $\bar{x}=0.78$
16	75	TP+LP	"	0.82-0.77SD=0.03
18	79	L+T	102-107	0.77-0.74
19	80.4	L+T	"	0.79-0.75
20	80.2	T+L	"	0.79-0.75
21	81.2	LP+TP	"	0.80-0.76
22	82.6	LP+TP	"	0.81-0.77
23	81	TP+LP	"	0.79-0.76 $\bar{x}=0.78$
24	82.4	TP+LP	"	0.81-0.77SD=0.02

TABLE 5

SAMPLE NO.	CHEST AW	LAUNDERING CYCLE	NOMINAL SIZE RANGE	REFERENCE FIT
3	65	L+T	81-86	0.80-0.76
10	74.4	L+T	91-97	0.82-0.77
11	71.6	L+T	91-97	0.79-0.74
18	79	L+T	102-107	0.77-0.74 $\bar{x}=0.77$
19	80.4	L+T	102-107	0.79-0.75 SD=0.03
4	64.8	T+L	81-86	0.80-0.75
5	66	T+L	81-86	0.81-0.77
12	71.2	T+L	91-97	0.78-0.73
13	71	T+L	91-97	0.78-0.73 $\bar{x}=0.77$
20	80.2	T+L	102-107	0.79-0.75 SD=0.03
6	67.2	LP+TP	81-86	0.83-0.78
7	68	LP+TP	81-86	0.84-0.79
14	75.4	LP+TP	91-97	0.83-0.78
21	81.2	LP+TP	102-107	0.80-0.76 $\bar{x}=0.80$
22	82.6	LP+TP	102-107	0.81-0.77 SD=0.03
8	67.6	TP+LP	81-86	0.83-0.79
15	71.6	TP+LP	91-97	0.79-0.74
16	75	TP+LP	91-97	0.82-0.77
23	81	TP+LP	102-107	0.79-0.76 $\bar{x}=0.79$
24	82.4	TP+LP	102-107	0.81-0.77 SD=0.03

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
GARMENTS TESTED AFTER WASHING TRIALS

TABLE 6

SAMPLE NO.	3	10	11	18	19	4	5	12	13	20
	L+T	L+T	L+T	L+T	L+T	T+L	T+L	T+L	T+L	T+L
CHEST CM.	65	74.4	71.6	79.7	80.4	64.8	66	71.2	71	80.2
WEIGHT G.S.M	190.9	185.3	181.2	191.1	193.1	181.1	184.8	179.8	178.6	180.8
COURSES/3CM.	55.2	53.3	53.7	53.7	52.6	50.8	51.3	50.1	50.1	49.3
WALES/3CM.	32.7	33.3	33.6	33.6	33.9	32.7	32	33.1	33	32.5
S.L.MM.	2.815	2.815	2.82	2.837	2.829	2.823	2.813	2.808	2.834	2.831
YARN TEX	19.5	19.4	19.2	18.9	19.2	19.3	19.7	19.5	19.4	19.4
SPIRALITY	0.4	1.3	0.3	-0.3	0.2	-1	0.6	0.2	1.3	1.3
S.E.S. g.	317.5	352.1	352	351.9	348.2	295.8	289.9	325.7	389.3	379.7
% EXT.	6.8	5.9	6.2	6.3	6.3	6.4	6.4	6.4	6.8	6.2
THICKNESS	993.3	999.2	1010.7	1011.1	995.4	933.4	922	947.2	948.1	930.4
RED	64.5	10.2	10.3	43.2	42.5	63.3	63.3	10.1	10.4	43
GREEN	55.1	18.4	18.4	43.9	43.2	53.8	53.8	17.8	18.3	43.3
BLUE	48.1	48.2	47.9	37.3	36.9	46	46.6	46.5	46.8	35.9

SAMPLE NO.	6	7	14	21	22	8	15	16	23	24
	LP+TP	LP+TP	LP+TP	LP+TP	LP+TP	TP+LP	TP+LP	TP+LP	TP+LP	TP+LP
CHEST CM.	67.2	68	75.4	81.2	82.6	67.6	71.6	75	81	82.4
WEIGHT G.S.M	197.1	196	194.3	196.9	193.6	186.5	187	188.7	180.4	182.6
COURSES/3CM.	52.9	53.1	52.5	52.6	52.3	52	50.5	50.4	49.5	50.1
WALES/3CM.	32.8	32.6	33	32.8	32.8	32.2	33.5	33.7	33.6	33.5
S.L.MM.	2.788	2.776	2.809	2.822	2.821	2.779	2.787	2.794	2.811	2.822
YARN TEX	19.2	19.4	19	19.2	18.8	20	19.3	19.1	19.2	19.3
SPIRALITY	-0.3	-0.6	2.5	1.1	0.4	-0.6	-0.3	-0.8	-1.2	-0.6
S.E.S. g.	321.8	292.5	341.1	358.5	354.1	302.7	365	347.5	365	368.2
% EXT.	6.8	6.5	6	6.3	6.3	6.6	6.2	6.4	6.6	6.5
THICKNESS	956.3	946.9	991.7	986	973.9	952.7	964.3	965.5	952.2	940.4
RED	63.7	63.6	10.3	43.7	43.3	63.4	9.8	10.4	44.1	42.8
GREEN	54.3	53.8	18.4	44.5	44.1	54.1	17.3	18.7	44.7	43.1
BLUE	46.2	45.3	47.2	38	36.8	46.9	45.4	47.3	37.4	36.4

\*\*\* ROW STATISTICS \*\*\*

	N	Mean	SD	CV%
2.WEIGHT G.S.M	20	187.4900	6.2634	3.34
3.COURSES/3CM.	20	51.8000	1.6400	3.17
4.WALES/3CM.	20	33.0450	0.5276	1.60
5.S.L.MM.	20	2.8117	0.0180	0.64
6.YARN TEX	20	19.3000	0.2675	1.39
7.SPIRALITY	20	0.1950	0.9473	485.79
8.S.E.S. g.	20	340.9250	29.2770	8.59
9.% EXT.	20	6.4050	0.2585	4.04
10.THICKNESS	20	966.0350	27.4260	2.84

## GARMENTS TESTED AFTER WASHING TRIALS

	ALL GARMENTS ALL WASH CONDITIONS		ALL SIZES 5WL + 5WT	ALL SIZES 5WT + 5WL	ALL SIZES 5WLP + 5WTP	ALL SIZES 5WTP + 5WLP
	$\bar{x}$	SD	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$
Weight	187.5	6.3	188.3	181.0	195.6	185.0
C/3cm	51.8	1.6	53.7	50.3	52.7	50.5
W/3cm	33.0	0.5	33.4	32.7	32.8	33.3
S.L. mm	2.812	0.02	2.823	2.822	2.803	2.799
Tex	19.3	0.3	19.2	19.5	19.1	19.4
Spirality	0.20	0.95	0.4	0.5	0.6	-0.7
S.E.S. g	340.9	29.3	344.3	336.1	333.6	349.7
% Ext.	6.4	0.3	6.3	6.4	6.4	6.5
Thickness	966.04	27.4	1,001.9	936.2	971.0	955.0

	ALL WASH CONDITIONS SIZE 81-86cm	ALL WASH CONDITIONS SIZE 91-97cm	ALL WASH CONDITIONS SIZE 102-107cm
Chest cm	66.4	72.9	81.0
Weight	189.4	185.0	188.4
C/3cm	52.6	51.5	51.4
W/3cm	32.5	33.3	33.2
S.L. mm	2.799	2.810	2.825
Tex	19.5	19.3	19.1
Spirality	-0.3	0.6	0.1
S.E.S. g	303.4	353.2	360.8
% Ext.	6.6	6.3	6.4
Thickness	950.8	975.2	969.9

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
NO. OF COURSES/3CM.

GARMENT NO.	NO. OF WASHES					
	0	1	2	3	4	5
WASH + LINE						
3	49.3	51.7	51.3	51.1	51.3	51.9
10	48.2	49.3	50.6	50	49.5	50.9
11	46.8	49.1	49.3	50.9	50.4	51.1
18	49.5	49.4	49.6	49.9	49.9	51.1
19	49.1	48.8	49.2	49.4	49.7	50.4

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
0	5	48.5800	1.1122	2.29
1	5	49.6600	1.1632	2.34
2	5	50.0000	0.9138	1.83
3	5	50.2600	0.7162	1.43
4	5	50.1600	0.7197	1.43
5	5	51.0000	0.5404	1.06

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
NO. OF COURSES/3CM.

GARMENT NO.	NO. OF WASHES					
	0	1	2	3	4	5
WASH + TUMBLE						
4	48.2	52.2	52.7	53.8	53.7	53.8
5	48.8	52.5	53.4	53.7	53.9	54.2
12	47.7	51	52.3	52.2	52.6	53
13	47.9	51.4	52.3	52.2	52.2	52.4
20	49.1	50.7	52	52	51.6	52.3

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
0	5	48.3400	0.5941	1.23
1	5	51.5600	0.7701	1.49
2	5	52.5400	0.5413	1.03
3	5	52.7800	0.8899	1.69
4	5	52.8000	0.9823	1.86
5	5	53.1400	0.8414	1.58

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF COURSES/3CM. - REVERSED ~~DRYING~~ PROCEDURE

TABLE 9

GARMENT NO.	NO. OF WASHES					
	0	6	7	8	9	10
W+L+W+T						
3	49.3	54.3	54.3	55.1	55.1	55.2
10	48.2	53.6	52.6	53.6	53	53.3
11	46.8	53	52.9	53.7	53.5	53.7
18	49.5	52.9	51.4	53.1	53.4	53.7
19	49.1	52.4	52.5	53.2	53	52.6

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
0.	5	48.5800	1.1122	2.29
6.	5	53.2400	0.7301	1.37
7.	5	52.7400	1.0407	1.97
8.	5	53.7400	0.8019	1.49
9.	5	53.6000	0.8689	1.62
10	5	53.7000	0.9513	1.77

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF COURSES/3CM. - REVERSED ~~DRYING~~ PROCEDURE

GARMENT NO.	NO. OF WASHES					
	0	6	7	8	9	10
W+T+W+L						
4	48.2	50.4	49.8	50.6	50.6	50.8
5	48.8	50.6	51.3	50.9	50.2	51.3
12	47.7	49.9	49.7	50.2	49.6	50.1
13	47.9	49.7	49.9	49.9	49.4	50.1
20	49.1	48.9	49.1	48.9	48.5	49.3

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
0	5	48.3400	0.5941	1.23
6	5	49.9000	0.6671	1.34
7	5	49.9600	0.8112	1.62
8	5	50.1000	0.7714	1.54
9	5	49.6600	0.8050	1.62
10	5	50.3200	0.7629	1.52

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF COURSES/3CM.

TABLE 10

GARMENT NO.	NO. OF WASHES					
	0	1	2	3	4	5
WASH+LINE+PRESS						
6	48.3	49	50.5	49.7	50	50
7	47.1	48.4	48.9	48.1	49.4	49.3
14	48.2	49.3	49.7	50.2	50.5	50.1
21	48.9	48.5	48.3	49.2	49.5	49.1
22	48	48.4	49.3	48.5	48.5	48.2

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CVX
0.	5	48.1000	0.6519	1.36
1.	5	48.7200	0.4087	0.84
2.	5	49.3400	0.0295	1.68
3.	5	49.1400	0.8562	1.74
4.	5	49.5800	0.7463	1.51
5.	5	49.3400	0.7781	1.56

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF COURSES/3CM.

GARMENT NO.	NO. OF WASHES					
	0	1	2	3	4	5
WASH+TUMBLE+PRESS						
8	48.7	53.2	53.5	53.2	53.5	54.4
15	48.2	51.5	52.2	52.2	52.4	52.9
16	47.7	51.5	51.8	52.3	52	52.6
23	49.1	51	51.4	51.5	51.2	51.6
24	49	51	51.3	51.7	51.8	52.3

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CVX
0.	5	48.5400	0.5557	1.21
1.	5	51.6400	0.9072	1.76
2.	5	52.0400	0.0905	1.71
3.	5	52.1800	0.6611	1.27
4.	5	52.1800	0.8556	1.64
5.	5	52.7600	1.0359	1.96



STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF COURSES/3CM. - REVERSED ~~DRYING~~ PROCEDURE

TABLE 11

GARMENT NO.	NO. OF WASHES					
	0	6	7	8	9	10
W+L+F+W+T+P						
6	48.3	52.9	52.6	52.8	53.6	52.9
7	47.1	51.9	51.9	52.6	52.7	53.1
14	48.2	52.5	52.6	52.3	53	52.5
21	48.9	52.2	51.9	52	52.3	52.6
22	48	51.5	50.9	51.3	51.4	52.3

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
0 6 7 8 9 10	5	48.1000	0.6519	1.36
	5	52.2000	0.5345	1.03
	5	51.9000	0.6979	1.34
	5	52.2000	0.5874	1.13
	5	52.6000	0.8216	1.56
	5	52.6000	0.3194	0.61

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF COURSES/3CM. - REVERSED ~~DRYING~~ PROCEDURE

GARMENT NO.	NO. OF WASHES					
	0	6	7	8	9	10
W+T+P+W+L+P						
8	48.7	52.3	51.2	52	52.4	52
15	48.2	49.7	49.5	50.3	50.9	50.5
16	47.7	50.3	49.8	50	49.9	50.4
23	49.1	49.4	49.1	49.1	49	49.5
24	49	49.1	50.3	49.2	49.2	50.1

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
0 6 7 8 9 10	5	48.5400	0.5857	1.21
	5	50.1600	1.2759	2.54
	5	49.9800	0.8106	1.62
	5	50.1200	1.1672	2.33
	5	50.2800	1.3989	2.78
	5	50.5000	0.9247	1.83

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
NO. OF WALES/3CM.

TABLE 12

GARMENT NO.	NO. OF WASHES					
	0	1	2	3	4	5
WASH+LINE						
3	29.4	32.7	31.9	32.6	32.9	32.1
10	30.5	34.1	33.9	34.4	35.3	34.4
11	30.3	34.3	35.1	34.7	33.9	34.4
18	30.9	34.5	34.8	34.8	34.7	34.1
19	31.3	33.9	35	34	34.5	34.2

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
0	5	30.4000	0.7155	2.35
1	5	33.9000	0.7071	2.09
2	5	34.1400	1.3390	3.92
3	5	34.1000	0.8944	2.62
4	5	34.2600	0.9099	2.66
5	5	33.8400	0.9813	2.90

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
NO. OF WALES/3CM.

GARMENT NO.	NO. OF WASHES					
	0	1	2	3	4	5
WASH+TUMBLE						
4	30.2	33.5	32.1	33.4	33.6	32.8
5	29.4	32.5	32.1	33.5	33.4	32.2
12	30.5	34.4	33.4	33.2	33.5	33
13	29.5	33.6	33.7	33.6	33.6	33.4
20	30.9	34	34.2	33.5	33.7	33.9

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
0	5	30.1000	0.6442	2.14
1	5	33.6000	0.7106	2.11
2	5	33.1000	0.9566	2.89
3	5	33.4400	0.1517	0.45
4	5	33.5600	0.1140	0.34
5	5	33.0600	0.6387	1.93

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF WALES/ 3CM. - REVERSED ~~DRYING~~ PROCEDURE

GARMENT NO.	NO. OF WASHES					
	0	6	7	8	9	10
W+L+W+T						
3	29.4	33.2	33	33	32.9	32.7
10	30.5	33.8	33.4	33.6	33.7	33.3
11	30.3	34.7	34.2	33.9	33.9	33.6
18	30.9	34.7	33.5	33.7	34	33.6
19	31.3	34.3	34.1	33.6	34	33.9

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CVX
0.	5	30.4800	0.7155	2.35
6.	5	34.1400	0.6427	1.88
7.	5	33.6400	0.5030	1.50
8.	5	33.5600	0.3362	1.00
9.	5	33.7000	0.4637	1.38
10.	5	33.4200	0.4550	1.36

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF WALES/3CM. - REVERSED ~~DRYING~~ PROCEDURE

GARMENT NO.	NO. OF WASHES					
	0	6	7	8	9	10
WT+WL						
4	30.2	32.9	33.7	33.3	33.5	32.7
5	29.4	32.4	31.8	32.2	32.2	32
12	30.5	33.1	33.1	33	33.8	33.1
13	29.5	31.6	33.3	33.3	34.1	33
20	30.9	34	33.3	33.6	33.9	32.5

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CVX
0	5	30.1000	0.6442	2.14
6	5	32.8000	0.8860	2.70
7	5	33.0400	0.7260	2.20
8	5	33.0800	0.5357	1.62
9	5	33.5000	0.7583	2.26
10	5	32.6600	0.4393	1.35

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
NO. OF WALES/3CM.

TABLE 14

GARMENT NO.	NO. OF WASHES					
	0	1	2	3	4	5
WASH+LINE+PRESS						
6	30.1	32.7	32.6	33.2	32	32.2
7	30.4	33.2	32.3	32.3	32	31.9
14	30.6	33.1	32.9	32.9	32.9	32.4
21	31.3	33.4	32.8	32.6	33	32.3
22	31.4	33.4	33.2	33.1	32.6	33.9

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
0.	5	30.7600	0.5603	1.85
1.	5	33.1600	0.2881	0.87
2.	5	32.7600	0.3362	1.03
3.	5	32.8200	0.3701	1.13
4.	5	32.5000	0.4796	1.48
5.	5	32.5400	0.7829	2.41

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
NO. OF WALES/3CM.

GARMENT NO.	NO. OF WASHES					
	0	1	2	3	4	5
WASH+TUMBLE+PRESS						
8	29.7	33	33	33.1	33.4	33
15	31.4	34.7	34.3	34.7	33.7	34.6
16	30.9	35.2	34.4	34	34.4	34.2
23	31	35.9	35.3	34.7	34.8	35.1
24	31.8	35.3	34.8	34.5	34.5	34.7

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
0	5	30.9600	0.7893	2.55
1	5	34.8200	1.1032	3.17
2	5	34.3600	0.8562	2.49
3	5	34.2000	0.6782	1.98
4	5	34.1600	0.5857	1.71
5	5	34.3200	0.8044	2.34

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF WALES/3CM. - REVERSED ~~DRYING~~ PROCEDURE

GARMENT NO.	NO. OF WASHES					
	0	6	7	8	9	10
<b>WLP+WTP</b>						
6	30.1	33.5	32.9	32.7	32.9	32.8
7	30.4	33	33.2	32.2	32	32.6
14	30.6	32.9	33.7	33.5	33	33
21	31.3	33.9	33.5	32.5	33.4	32.8
22	31.4	33.1	33.2	33.2	32.9	32.8

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
0	5	30.7600	0.5683	1.85
6	5	33.2800	0.4147	1.25
7	5	33.3000	0.3082	0.93
8	5	33.8200	1.9305	5.71
9	5	32.8400	0.5128	1.56
10	5	32.8000	0.1414	0.43

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF WALES/3CM. - REVERSED ~~DRYING~~ PROCEDURE

GARMENT NO.	NO. OF WASHES					
	0	6	7	8	9	10
<b>WTP+WLP</b>						
8	29.7	31.8	32.6	31.7	31.5	32.2
15	31.4	34	33.2	33.1	33.3	33.5
16	30.9	33	33.3	32.9	33.2	33.7
23	31	33.9	33.9	34.1	34	33.6
24	31.8	33.5	33.3	33.4	34	33.5

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
0	5	30.9600	0.7893	2.55
6	5	33.2400	0.8961	2.70
7	5	33.2600	0.4615	1.39
8	5	33.0400	0.8764	2.65
9	5	33.2000	1.0223	3.08
10	5	33.3000	0.6205	1.86

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF COURSES/3CM.

GARMENT NO.	NO. OF WASHES					
	0	1	2	3	4	5
W+L						
3 S	49.3	51.7	51.3	51.1	51.3	51.9
10 M	48.2	49.3	50.6	50	49.5	50.9
11 M	46.8	49.1	49.3	50.9	50.4	51.1
18 L	49.5	49.4	49.6	49.9	49.9	51.1
19 L	49.1	48.8	49.2	49.4	49.7	50.4
W+T						
4 S	48.2	52.2	52.7	53.8	53.7	53.8
5 S	48.8	52.5	53.4	53.7	53.9	54.2
12 M	47.7	51	52.3	52.2	52.6	53
13 M	47.9	51.4	52.3	52.2	52.2	52.4
20 L	49.1	50.7	52	52	51.6	52.3
W+L+P						
6 S	48.3	49	50.5	49.7	50	50
7 S	47.1	48.4	48.9	48.1	49.4	49.3
14 M	48.2	49.3	49.7	50.2	50.5	50.1
21 L	48.9	48.5	48.3	49.2	49.5	49.1
22 L	48	48.4	49.3	48.5	48.5	48.2
W+T+P						
8 S	48.7	53.2	53.5	53.2	53.5	54.4
15 M	48.2	51.5	52.2	52.2	52.4	52.9
16 M	47.7	51.5	51.8	52.3	52	52.6
23 L	49.1	51	51.4	51.5	51.2	51.6
24 L	49	51	51.3	51.7	51.8	52.3

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF COURSES/3CM. - REVERSED DRYING PROCEDURE

GARMENT NO.	NO. OF WASHES					
	0	6	7	8	9	10
W+L+W+T						
3	49.3	54.3	54.3	55.1	55.1	55.2
10	48.2	53.6	52.6	53.6	53	53.3
11	46.8	53	52.9	53.7	53.5	53.7
18	49.5	52.9	51.4	53.1	53.4	53.7
19	49.1	52.4	52.5	53.2	53	52.6
W+T+W+L						
4	48.2	50.4	49.8	50.6	50.6	50.8
5	48.8	50.6	51.3	50.9	50.2	51.3
12	47.7	49.9	49.7	50.2	49.6	50.1
13	47.9	49.7	49.9	49.9	49.4	50.1
20	49.1	48.9	49.1	48.9	48.5	49.3
W+L+P+W+T+P						
6	48.3	52.9	52.6	52.8	53.6	52.9
7	47.1	51.9	51.9	52.6	52.7	53.1
14	48.2	52.5	52.6	52.3	53	52.5
21	48.9	52.2	51.9	52	52.3	52.6
22	48	51.5	50.9	51.3	51.4	52.3
W+T+P+W+L+P						
8	48.7	52.3	51.2	52	52.4	52
15	48.2	49.7	49.5	50.3	50.9	50.5
16	47.7	50.3	49.8	50	49.9	50.4
23	49.1	49.4	49.1	49.1	49	49.5
24	49	49.1	50.3	49.2	49.2	50.1

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF WALES/3CM.

GARMENT NO.	NO. OF WASHES					
	0	1	2	3	4	5
-----						
W+L						
3	29.4	32.7	31.9	32.6	32.9	32.1
10	30.5	34.1	33.9	34.4	35.3	34.4
11	30.3	34.3	35.1	34.7	33.9	34.4
18	30.9	34.5	34.8	34.8	34.7	34.1
19	31.3	33.9	35	34	34.5	34.2
W+T						
4	30.2	33.5	32.1	33.4	33.6	32.8
5	29.4	32.5	32.1	33.5	33.4	32.2
12	30.5	34.4	33.4	33.2	33.5	33
13	29.5	33.6	33.7	33.6	33.6	33.4
20	30.9	34	34.2	33.5	33.7	33.9
W+L+P						
6	30.1	32.7	32.6	33.2	32	32.2
7	30.4	33.2	32.3	32.3	32	31.9
14	30.6	33.1	32.9	32.9	32.9	32.4
21	31.3	33.4	32.8	32.6	33	32.3
22	31.4	33.4	33.2	33.1	32.6	33.9
W+T+P						
8	29.7	33	33	33.1	33.4	33
15	31.4	34.7	34.3	34.7	33.7	34.6
16	30.9	35.2	34.4	34	34.4	34.2
23	31	35.9	35.3	34.7	34.8	35.1
24	31.8	35.3	34.8	34.5	34.5	34.7
=====						



STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 NO. OF WALES/ 3CM. - REVERSED DRYING PROCEDURE

GARMENT NO.	NO. OF WASHES					
	0	6	7	8	9	10
W+L+W+T						
3	29.4	33.2	33	33	32.9	32.7
10	30.5	33.8	33.4	33.6	33.7	33.3
11	30.3	34.7	34.2	33.9	33.9	33.6
18	30.9	34.7	33.5	33.7	34	33.6
19	31.3	34.3	34.1	33.6	34	33.9
W+T+W+L						
4	30.2	32.9	33.7	33.3	33.5	32.7
5	29.4	32.4	31.8	32.2	32.2	32
12	30.5	33.1	33.1	33	33.8	33.1
13	29.5	31.6	33.3	33.3	34.1	33
20	30.9	34	33.3	33.6	33.9	32.5
W+L+P+W+T+P						
6	30.1	33.5	32.9	32.7	32.9	32.8
7	30.4	33	33.2	37.2	32	32.6
14	30.6	32.9	33.7	33.5	33	33
21	31.3	33.9	33.5	32.5	33.4	32.8
22	31.4	33.1	33.2	33.2	32.9	32.8
W+T+PW+L+P						
8	29.7	31.8	32.6	31.7	31.5	32.2
15	31.4	34	33.2	33.1	33.3	33.5
16	30.9	33	33.3	32.9	33.2	33.7
23	31	33.9	33.9	34.1	34	33.6
24	31.8	33.5	33.3	33.4	34	33.5

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT LENGTH SHRINKAGE - WASH + LINE DRY

TABLE 20

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
3	2.3	1.2	2.5	3	2.5
10	1.9	2.7	1.6	1.5	1.1
11	2.7	1.9	2.7	3.3	3
18	-1.4	-2.9	-2.5	-2.6	-2.9
19	-3.5	-3.6	-2.8	-3.5	-3.1

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
1.	5	0.4000	2.7203	680.07
2.	5	-0.1400	2.8988	2070.57
3.	5	0.3000	2.7267	908.91
4.	5	0.3400	3.1848	936.71
5.	5	0.1200	2.9329	2444.10

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT LENGTH SHRINKAGE - WASH + TUMBLE DRY

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
4	8.2	9.7	10.4	10.3	9.1
5	9	9.8	10.9	11.3	10.9
12	7.7	9.1	9.7	9.3	9.8
13	7.5	8.2	9.3	9.1	9.2
20	8.7	7	8	7.6	8.2

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
1.	5	8.2200	0.6382	7.76
2.	5	8.7600	1.1718	13.36
3.	5	9.6600	1.1149	11.54
4.	5	9.5200	1.3864	14.56
5.	5	9.4400	0.9965	10.56

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT LENGTH SHRINKAGE - REVERSED ~~DRYING~~ PROCEDURE

TABLE 21

GARMENT NO.	NO. OF WASHES				
	6	7	8	9	10
W+L+W+T					
3	6.6	7.5	7.5	7.9	9.1
10	7.4	7.2	7.9	7.7	8.9
11	7.4	7.9	8.1	8.3	9.4
18	2.8	2.8	4.2	3.4	5.4
19	2	4.1	4	3	4.3

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
6	5	5.2400	2.6283	50.16
7	5	5.9000	2.2967	38.93
8	5	6.3400	2.0574	32.45
9	5	6.0600	2.6235	43.29
10	5	7.4800	2.2884	30.59

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT LENGTH SHRINKAGE - REVERSED ~~DRYING~~ PROCEDURE

GARMENT NO.	NO. OF WASHES				
	6	7	8	9	10
W+T+W+L					
4	4.3	4.7	5.3	4.2	5.5
5	5.3	5.9	3.7	3.9	6.9
12	5.1	3.7	4	4.1	5.9
13	4	3.3	3.9	4	4.5
20	2.3	1.7	2.3	2.3	2.2

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
6	5	4.2000	1.1916	28.37
7	5	3.8600	1.5710	40.70
8	5	3.8400	1.0668	27.78
9	5	3.7000	0.7906	21.37
10	5	5.0000	1.7861	35.72

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT LENGTH SHRINKAGE - WASH + LINE + PRESS

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
6	1.6	2.5	2.3	3.4	3.5
7	0.6	0.9	1.7	2.9	2
14	1.5	1.8	0.6	3.5	3.2
21	-1.8	-1.7	-1.6	-0.7	-0.6
22	-1.8	-1.1	-1.6	-1.9	-2.4

\*\*\* COLUMN STATISTICS \*\*\*

		N	Mean	SD	CV%
1.	1	5	0.0200	1.7065	8532.29
2.	2	5	0.4800	1.8199	379.14
3.	3	5	0.2800	1.8213	650.45
4.	4	5	1.4400	2.5472	176.89
5.	5	5	1.2400	2.6633	214.78

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT LENGTH SHRINKAGE - WASH + TUMBLE + PRESS

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
8	6.5	7.3	7.4	7.8	8.8
15	7.7	7.2	7.7	7.8	8.7
16	6.5	6.4	6.9	7.8	8.1
23	3.5	3.3	3.7	3.7	3.9
24	3.2	3.6	3.9	3.4	5

\*\*\* COLUMN STATISTICS \*\*\*

		N	Mean	SD	CV%
1.	1	5	5.4800	2.0080	36.64
2.	2	5	5.5600	1.9604	35.26
3.	3	5	5.9200	1.9575	33.07
4.	4	5	6.1000	2.3302	38.20
5.	5	5	6.9000	2.2858	33.13

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT LENGTH SHRINKAGE - REVERSED ~~DRYING~~ PROCEDURE

TABLE 23

GARMENT NO.	NO. OF WASHES				
	6	7	8	9	10
W+L+P+W+T+P					
6	7.5	8	7.7	7.5	9.4
7	6.5	7	7.1	7.9	8.2
14	6.7	6.9	7.4	7.4	7.7
21	3.3	4.1	4.4	3.6	5.6
22	3.4	3.4	3.6	5.3	5.2

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
6 7 8 9 10	5	5.4800	1.9804	36.14
	5	5.8800	2.0067	34.13
	5	6.0400	1.8955	31.38
	5	6.5400	1.4843	22.69
	5	7.2200	1.7782	24.63

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT LENGTH SHRINKAGE - REVERSED ~~DRYING~~ PROCEDURE

GARMENT NO.	NO. OF WASHES				
	6	7	8	9	10
W+T+P+W+L+P					
8	5.4	4.1	4.4	4.9	4
15	4.3	3.8	4.5	4.4	3.9
16	4.2	3.1	3.9	3.8	3.6
23	-0.6	-0.9	-1	-0.9	-1.3
24	1.1	0.03	0.03	-0.7	0.01

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
6 7 8 9 10	5	2.8800	2.5193	87.48
	5	2.0260	2.2993	113.49
	5	2.3660	2.6378	111.49
	5	2.3000	2.8574	124.24
	5	2.0420	2.5006	122.46

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT WIDTH SHRINKAGE - WASH + LINE DRY

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
3	3.8	3.7	4.6	3.4	5.2
10	5.6	5.9	8.3	6.5	6.1
11	8	5.8	5.9	7.3	7.5
18	6.8	7.4	5.9	6.7	7
19	3.5	7	4.5	4.6	4.2

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%	
1.	1	5	5.5400	1.9256	34.76
2.	2	5	5.9600	1.4398	24.16
3.	3	5	5.8400	1.5323	26.24
4.	4	5	5.7000	1.6355	28.69
5.	5	5	6.0000	1.3360	22.27

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT WIDTH SHRINKAGE - WASH + TUMBLE DRY

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
4	11.5	8.6	9.2	8.8	10.5
5	7.5	10.4	10.6	12.2	10.6
12	12.4	8.7	9.2	9.8	9.7
13	10.1	8.8	9.5	9.1	9.8
20	11.9	11.4	10.1	10.4	9.7

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%	
1.	1	5	11.0800	1.2296	11.10
2.	2	5	9.5800	1.2578	13.13
3.	3	5	9.7200	0.6140	6.32
4.	4	5	10.0600	1.3483	13.40
5.	5	5	10.0600	0.4506	4.46

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT WIDTH SHRINKAGE - REVERSED ~~DRYING~~ PROCEDURE

GARMENT NO.	NO. OF WASHES				
	6	7	8	9	10
	W+L+W+T				
3	6.6	8.2	7.7	7.4	7.5
10	8.4	6.9	8.2	7	6.6
11	7.9	7	5.5	10.1	8
18	10.8	8.7	8.3	7.8	8
19	9.9	9.1	7.6	8.2	7.7

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
6 7 8 9 10	5	8.7200	1.6574	19.01
	5	7.9800	0.9935	12.45
	5	7.4600	1.1371	15.24
	5	8.1000	1.2042	14.87
	5	7.5600	0.5771	7.63

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT WIDTH SHRINKAGE - REVERSED ~~DRYING~~ PROCEDURE

GARMENT NO.	NO. OF WASHES				
	6	7	8	9	10
	W+T+W+L				
4	6.8	10.7	9	9.1	8.1
5	4.8	6.7	8.3	9.7	6.2
12	8.8	9.8	7.2	10.4	7.3
13	6.7	7.3	7.9	9.6	8.3
20	6.7	10.8	9.1	10.4	6.7

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
6 7 8 9 10	5	6.7600	1.4153	20.94
	5	9.0600	1.9321	21.33
	5	8.3000	0.7906	9.52
	5	9.8400	0.5595	5.69
	5	7.3200	0.8955	12.23

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT WIDTH SHRINKAGE - WASH + LINE + PRESS

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
6	6.5	4.8	5.0	5.4	5.4
7	4.8	4.1	3.8	3.2	1.7
14	6.5	5.8	6.6	5.9	5.9
21	6.3	5.8	3.4	4	3.7
22	6.4	4	4	5.4	6.6

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
1.	1	5	6.1000	0.7314
2.	2	5	4.9000	0.8775
3.	3	5	4.7200	1.3971
4.	4	5	4.7800	1.1323
5.	5	5	4.6600	1.9705

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT WIDTH SHRINKAGE - WASH + TUMBLE + PRESS

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
8	7.2	6.9	5.9	7.1	5.9
15	7.8	7.4	7.6	8.6	8
16	10.3	8.3	8.6	8.7	9.4
23	10.9	9.6	9.4	9.5	8.3
24	10.2	10	8.9	9.3	6.2

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
1.	1	5	9.2800	1.6604
2.	2	5	8.4400	1.3465
3.	3	5	8.0800	1.3846
4.	4	5	8.6400	0.9423
5.	5	5	7.9600	1.2740



STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT WIDTH SHRINKAGE - REVERSED ~~DRYING~~ PROCEDURE

TABLE 27

GARMENT NO.	NO. OF WASHES				
	6	7	8	9	10
	W+L+P+W+T+P				
6	9.2	5.8	7	9.1	10.4
7	6.4	6	7.3	5.2	6.1
14	9.9	8.5	8.3	7.8	7.9
21	6.8	8	6.1	6.9	7.9
22	6.8	6	6.6	5.1	6.6

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
6 9 10	5	7.8200	1.6069	20.55
	5	6.8600	1.2837	18.71
	5	7.0500	0.8264	11.71
	5	6.8200	1.7138	25.13
	5	7.7800	1.6664	21.42

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT WIDTH SHRINKAGE - REVERSED ~~DRYING~~ PROCEDURE

GARMENT NO.	NO. OF WASHES				
	6	7	8	9	10
	W+T+P+W+L+P				
8	3.5	2.9	3.5	3	1.9
15	5.4	4.6	3.4	4.5	4.7
16	6.3	6.3	5.1	4.8	5.7
23	5.1	5.6	5.7	6.1	5.9
24	6.1	4.6	5.9	5.5	4.8

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
6 9 10	5	5.2800	1.1100	21.02
	5	4.8000	1.2826	26.72
	5	4.7200	1.1967	25.35
	5	4.7800	1.1735	24.55
	5	4.6000	1.6000	34.78

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
GARMENT LENGTH SHRINKAGE

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
W + L					
3	2.3	1.2	2.5	3	2.5
10	1.9	2.7	1.6	1.5	1.1
11	2.7	1.9	2.7	3.3	3
18	-1.4	-2.9	-2.5	-2.6	-2.9
19	-3.5	-3.6	-2.8	-3.5	-3.1
W + T					
4	8.2	9.7	10.4	10.3	9.1
5	9	9.8	10.9	11.3	10.9
12	7.7	9.1	9.7	9.3	9.8
13	7.5	8.2	9.3	9.1	9.2
20	8.7	7	8	7.6	8.2
W + L + P					
6	1.6	2.5	2.3	3.4	3.5
7	0.6	0.9	1.7	2.9	2
14	1.5	1.8	0.6	3.5	3.7
21	-1.8	-1.7	-1.6	-0.7	-0.6
22	-1.8	-1.1	-1.6	-1.9	-2.4
W + T + P					
8	6.5	7.3	7.4	7.8	8.8
15	7.7	7.2	7.7	7.8	8.7
16	6.5	6.4	6.9	7.8	8.1
23	3.5	3.3	3.7	3.7	3.9
24	3.2	3.6	3.9	3.4	5

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT LENGTH SHRINKAGE - REVERSED DRYING PROCEDURE

GARMENT NO.	NO. OF WASHES				
	6	7	8	9	10
-----					
W+L+W+T					
3	6.6	7.5	7.5	7.9	9.1
10	7.4	7.2	7.9	7.7	8.9
11	7.4	7.9	8.1	8.3	9.4
18	2.8	2.8	4.2	3.4	5.4
19	2	4.1	4	3	4.6
W+T+W+L					
4	4.3	4.7	5.3	4.2	5.5
5	5.3	5.9	3.7	3.9	6.9
12	5.1	3.7	4	4.1	5.9
13	4	3.3	3.9	4	4.5
20	2.3	1.7	2.3	2.3	2.2
W+L+P+W+T+P					
6	7.5	8	7.7	7.5	9.4
7	6.5	7	7.1	7.9	8.2
14	6.7	6.9	7.4	7.4	7.7
21	3.3	4.1	4.4	4.6	5.6
22	3.4	3.4	3.6	5.3	5.2
W+T+P+W+L+P					
8	5.4	4.1	4.4	4.9	4
15	4.3	3.8	4.5	4.4	3.9
16	4.2	3.1	3.9	3.8	3.6
23	-0.6	-0.9	-1	-0.9	-1.3
24	1.1	0.03	0.03	-0.7	0.01
=====					

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
GARMENT WIDTH SHRINKAGE

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
W + L					
3	3.8	3.7	4.6	3.4	5.2
10	5.6	5.9	8.3	6.5	6.1
11	8	5.8	5.9	7.3	7.5
18	6.8	7.4	5.9	6.7	7
19	3.5	7	4.5	4.6	4.2
W + T					
4	11.5	8.6	9.2	8.8	10.5
5	9.5	10.4	10.6	12.2	10.6
12	12.4	8.7	9.2	9.8	9.7
13	10.1	8.8	9.5	9.1	9.8
20	11.9	11.4	10.1	10.4	9.7
W + L + P					
6	6.5	4.8	5.8	5.4	5.4
7	4.8	4.1	3.8	3.2	1.7
14	6.5	5.8	6.6	5.9	5.9
21	6.3	5.8	3.4	4	3.7
22	6.4	4	4	5.4	6.6
W + T + P					
8	7.2	6.9	5.9	7.1	5.9
15	7.8	7.4	7.6	8.6	8
16	10.3	8.3	8.6	8.7	9.4
23	10.9	9.6	9.4	9.5	8.3
24	10.2	10	8.9	9.3	8.2

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
 GARMENT WIDTH SHRINKAGE - REVERSED DRYING PROCEDURE

GARMENT NO.	NO. OF WASHES				
	6	7	8	9	10
W+L+W+T					
3	6.6	8.2	7.7	7.4	7.5
10	8.4	6.9	8.2	7	6.6
11	7.9	7	5.5	10.1	8
18	10.8	8.7	8.3	7.8	8
19	9.9	9.1	7.6	8.2	7.7
W+T+W+L					
4	6.8	10.7	9	9.1	8.1
5	4.8	6.7	8.3	9.7	6.2
12	8.8	9.8	7.2	10.4	7.3
13	6.7	7.3	7.9	9.6	8.3
20	6.7	10.8	9.1	10.4	6.7
W+L+P+W+T+P					
6	9.2	5.8	7	9.1	10.4
7	6.4	6	7.3	5.2	6.1
14	9.9	8.5	8.3	7.8	7.9
21	6.8	8	6.1	6.9	7.9
22	6.8	6	6.6	5.1	6.6
W+T+P+W+L+P					
8	3.5	2.9	3.5	3	1.9
15	5.4	4.6	3.4	4.5	4.7
16	6.3	6.3	5.1	4.8	5.7
23	5.1	5.6	5.7	6.1	5.9
24	6.1	4.6	5.9	5.5	4.8

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
M&S MEASURING FRAME % SHRINKAGE VALUES

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
WASH+LINE					
3	3.7	4.1	3.7	3.7	4.5
10	3.2	3.5	4.4	3.4	3.9
11	3.3	3	4.7	3.4	3
18	-0.2	-1.2	-0.5	-0.5	-1
19	0.1	0.1	0.9	1	1.4

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
1.	5	2.0200	1.9018	94.15
2.	5	1.9000	2.3162	121.91
3.	5	2.6400	2.3104	87.52
4.	5	2.2000	1.8615	84.61
5.	5	2.3600	2.2120	93.73

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
M&S MEASURING FRAME % SHRINKAGE VALUES

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
WASH+TUMBLE					
4	7.9	9.2	10.1	10.6	11.1
5	6.9	8.4	9.5	9.6	10.5
12	7	8.1	8.9	9.7	8.8
13	6.7	8.1	8.1	9.5	8.7
20	6.1	7.4	8.8	8.1	7.6

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
1.	5	6.9200	0.6496	9.39
2.	5	8.2400	0.6504	7.89
3.	5	8.6800	1.2853	14.81
4	5	9.5000	0.8972	9.44
5.	5	9.3400	1.4293	15.30

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
M&S MEASURING FRAME % SHRINKAGE VALUES

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
WASH+LINE+PRESS					
6	3.5	4.7	4.5	4.3	4
7	3.2	3	4.5	4.5	4.8
14	2.8	4.2	3.9	2.9	4.5
21	0.6	1.1	1.3	1.7	1.1
22	1	2	1.9	2.2	1.8

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
1.	5	2.2200	1.3274	59.79
2.	5	3.0000	1.4950	49.83
3.	5	3.2200	1.5139	47.02
4.	5	3.1200	1.2458	39.93
5.	5	3.2400	1.6772	51.77

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
M&S MEASURING FRAME % SHRINKAGE VALUES

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
WASH+TUMBLE+PRESS					
8	7.5	9.4	9.4	9.3	10.8
15	7.2	8.1	8.2	8.3	8.9
16	7.6	8.1	8.5	8.5	9.1
23	4.8	5.2	5	5.7	6.2
24	4.7	5.5	5.4	5.9	6.2

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
1.	5	6.3600	1.4775	23.23
2.	5	7.2600	1.8257	25.15
3	5	7.3000	1.9723	27.02
4.	5	7.5400	1.6334	21.66
5.	5	8.2400	2.0032	24.31

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
W+L+W+T					
3	7	8.6	9.1	8.7	9.2
10	6.8	9.5	8.3	8.3	9.3
11	7.5	8.5	7.9	8	6.6
18	3.4	4.5	4.2	4.6	5.3
19	4.7	5.8	5.6	5.2	6.6

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
1.	5	5.8800	1.7513	29.78
2.	5	7.3800	2.1230	28.77
3.	5	7.0200	2.0438	29.11
4.	5	6.9600	1.9087	27.42
5.	5	7.4000	1.7706	23.93

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
W+T+W+L					
4	6.4	6.7	6.8	7	7.4
5	6.2	6.3	5.8	5.5	6.1
12	5.2	5.1	5.1	5.5	5.4
13	4.4	4.3	4.5	4.3	4.4
20	2.9	2.5	2.3	2.2	2.6

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
1.	5	5.0200	1.4325	28.54
2.	5	4.9800	1.6829	33.79
3.	5	4.9000	1.6867	34.42
4.	5	4.9000	1.7875	36.48
5.	5	5.1800	1.6089	31.92



STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
M&S MEASURING FRAME % SHRINKAGE VALUES - REVERSED ~~DRYING~~ PROCEDURE

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
W+L+P+W+T+P					
6	8.2	8.8	9.6	8.9	10
7	6.4	9	9.6	9.4	10.2
14	7.8	8.1	8.6	8.7	8.4
21	4.2	5.2	5.3	5.9	6
22	5.6	5.2	5.7	6	7.2

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
1.	5	6.4400	1.6334	25.36
2.	5	7.2600	1.9100	26.31
3.	5	7.7600	2.1078	27.16
4.	5	7.7800	1.6903	21.73
5.	5	8.3600	1.8022	21.56

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
M&S MEASURING FRAME % SHRINKAGE VALUES - REVERSED ~~DRYING~~ PROCEDURE

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
W+T+P+W+L+P					
8	7.3	6.9	6.8	6.7	6.9
15	5	5.3	5.7	5.6	5.7
16	5.7	5.8	6.6	6	5.8
23	2.2	2.7	2.1	1.7	2.6
24	2.9	3.1	2.6	3.1	3.4

\*\*\* COLUMN STATISTICS \*\*\*

	N	Mean	SD	CV%
1.	5	4.6200	2.0801	45.02
2.	5	4.7600	1.7994	37.80
3.	5	4.7600	2.2457	47.18
4.	5	4.6200	2.1230	45.95
5.	5	4.8800	1.8019	36.93

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
M&S MEASURING FRAME % SHRINKAGE VALUES

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
WASH+LINE					
3	3.7	4.1	3.7	3.7	4.5
10	3.2	3.5	4.4	3.4	3.9
11	3.3	3	4.7	3.4	3
18	-0.2	-1.2	-0.5	-0.5	-1
19	0.1	0.1	0.9	1	1.4
WASH+TUMBLE					
4	7.9	9.2	10.1	10.6	11.1
5	6.9	8.4	9.5	9.6	10.5
12	7	8.1	8.9	9.7	8.8
13	6.7	8.1	8.1	9.5	8.7
20	6.1	7.4	6.8	8.1	7.6
WASH+LINE+PRESS					
6	3.5	4.7	4.5	4.3	4
7	3.2	3	4.5	4.5	4.8
14	2.8	4.2	3.9	2.9	4.5
21	0.6	1.1	1.3	1.7	1.1
22	1	2	1.9	2.2	1.8
WASH+TUMBLE+PRESS					
8	7.5	9.4	9.4	9.3	10.8
15	7.2	8.1	8.2	8.3	8.9
16	7.6	8.1	8.5	8.5	9.1
23	4.8	5.2	5	5.7	6.2
24	4.7	5.5	5.4	5.9	6.2

STORE GARMENT TRIALS - 2 BRITISH HOME STORES  
M&S MEASURING FRAME % SHRINKAGE VALUES - REVERSED DRYING PROCEDURE

GARMENT NO.	NO. OF WASHES				
	1	2	3	4	5
-----					
W+L+W+T					
3	7	8.6	9.1	8.7	9.2
10	6.8	9.5	8.3	8.3	9.3
11	7.5	8.5	7.9	8	6.6
18	3.4	4.5	4.2	4.6	5.3
19	4.7	5.8	5.6	5.2	6.6
W+T+W+L					
4	6.4	6.7	6.8	7	7.4
5	6.2	6.3	5.8	5.5	6.1
12	5.2	5.1	5.1	5.5	5.4
13	4.4	4.3	4.5	4.3	4.4
20	2.9	2.5	2.3	2.2	2.6
W+L+P+W+T+P					
6	8.2	8.8	9.6	8.9	10
7	6.4	9	9.6	9.4	10.2
14	7.8	8.1	8.6	8.7	8.4
21	4.2	5.2	5.3	5.9	6
22	5.6	5.2	5.7	6	7.2
W+T+P+W+L+P					
8	7.3	6.9	6.8	6.7	6.9
15	5	5.3	5.7	5.6	5.7
16	5.7	5.8	6.6	6	5.8
23	2.2	2.7	2.1	1.7	2.6
24	2.9	3.1	2.6	3.1	3.4
=====					

% SHRINKAGE CALCULATED FROM COURSES AND WALES

<u>WIDTH</u>		W+T	W+L+P	<u>LAUNDERING METHOD</u>			WLP+WTP	WTP+WLP
<u>NO</u>	<u>WASHES</u>			W+T+P	WL+WT	WT+WL		
	W+L							
1	10.0	10.4	7.2	10.9	10.6	8.2	6.6	7.5
2	10.6	9.1	6.1	9.9	9.2	8.8	6.9	7.5
3	10.6	9.9	6.1	9.4	9.2	9.1	6.1	8.9
4	11.1	10.4	5.2	9.4	9.5	10.2	6.6	6.1
5	9.8	9.1	5.2	9.6	8.7	8.0	6.1	6.1
<u>LENGTH</u>								
1	2.2	6.4	1.2	6.0	8.7	3.2	7.9	3.4
2	2.8	8.0	2.4	6.7	7.8	3.4	7.5	3.0
3	3.4	8.5	2.0	7.1	9.5	3.6	7.9	3.2
4	3.2	8.5	3.0	7.1	9.3	2.8	8.6	3.6
5	4.9	9.0	2.4	8.1	9.5	4.0	8.7	4.0

## SHRINKAGE COMPARISONS

## WIDTH SHRINKAGE

NO	W+L			W+T			W+L+P			W+T+P		
	Calc	MF	Meas	Calc	MF	Meas	Calc	MF	Meas	Calc	MF	Meas
1	10.0	-	5.5	10.4	-	11.1	7.2	-	6.1	10.9	-	9.3
2	10.6	-	6.0	9.1	-	9.6	6.1	-	4.9	9.9	-	8.4
3	10.6	-	5.8	9.9	-	9.7	6.1	-	4.7	9.4	-	8.1
4	11.1	-	5.7	10.4	-	10.1	5.2	-	4.8	9.4	-	8.6
5	9.8	-	6.0	9.1	-	10.1	5.2	-	4.7	9.6	-	8.0
$\bar{x}$	10.4		5.8	9.78		10.12	5.96		5.04	9.84		8.48
SD	0.5		0.2	0.7		0.6	0.8		0.6	0.6		0.5
WL+WT			WT+WL			WLP+WTP			WTP+WLP			
6	10.6	-	8.7	8.2	-	6.8	6.6	-	7.8	7.5	-	5.3
7	9.2	-	8.0	8.8	-	9.1	6.9	-	6.9	7.5	-	4.8
8	9.2	-	7.5	9.1	-	8.3	6.1	-	7.1	8.9	-	4.7
9	9.5	-	8.1	10.2	-	9.8	6.6	-	6.8	6.1	-	4.8
10	8.7	-	7.6	8.0	-	7.3	6.1	-	7.8	6.1	-	4.6
$\bar{x}$	9.44		7.98	8.86		8.26	6.46		7.3	7.22		4.84
SD	0.7		0.5	0.9		1.2	0.4		0.5	1.2		0.3
<u>LENGTH SHRINKAGE</u>												
NO	W+L			W+T			W+L+P			W+T+P		
	Calc	MF	Meas	Calc	MF	Meas	Calc	MF	Meas	Calc	MF	Meas
1	2.2	2.0	0.4	6.4	6.9	8.2	1.2	2.2	0.02	6.0	6.4	5.5
2	2.8	1.9	0.1Ex	8.0	8.2	8.8	2.4	3.0	0.5	6.7	7.3	5.6
3	3.4	2.6	0.3	8.5	8.7	9.7	2.0	3.2	0.3	7.1	7.3	5.9
4	3.2	2.2	0.3	8.5	9.5	9.5	3.0	3.1	1.4	7.1	7.5	6.1
5	4.9	2.4	0.1	9.0	9.3	9.4	2.4	3.2	1.2	8.1	8.2	6.9
$\bar{x}$	3.3	2.2	0.2	8.1	8.5	9.1	2.2	2.94	0.7	7.0	7.3	6.0
SD	1.0	0.3	0.2	1.0	1.0	0.6	0.7	0.4	0.6	0.8	0.6	0.6
WL+WT			WT+WL			WLP+WTP			WTP+WLP			
6	8.7	5.9	5.2	3.2	5.0	4.2	7.9	6.4	5.5	3.4	4.6	2.9
7	7.8	7.4	5.9	3.4	5.0	3.9	7.5	7.3	5.9	3.0	4.8	2.0
8	9.5	7.0	6.3	3.6	4.9	3.8	7.9	7.8	6.0	3.2	4.8	2.4
9	9.3	7.0	6.1	2.8	4.9	3.7	8.6	7.8	6.5	3.6	4.6	2.3
10	9.5	7.4	7.5	4.0	5.2	5.0	8.7	8.4	7.2	4.0	4.9	2.0
$\bar{x}$	9.0	7.0	6.2	3.4	5.0	4.11	8.1	7.5	6.2	3.4	4.2	2.3
SD	0.7	0.6	0.8	0.4	0.1	0.5	0.5	0.7	0.7	0.4	0.1	0.4

## I I C - STARFISH 84 - MODEL PREDICTIONS

1x1 Rib - singles, combed ring yarns

14g 24in 1056 needles

Winch dye (medium)

Finished Reference State Dimensions

12-APR-85 11:24

Average as knitted				Average Reference dimensions							
Yarn	StLen	C.Len	Tness	Yarn	StLen	Tness	courses	wales	weight	width	
Tex	cm	cm	Fctr	Tex	cm	Fctr	3cm	3cm	g/sm	cm(T)	
20.0	0.2870	303.1	15.6	19.3	0.282	15.6	53.0	33.8	213	46.9	*

NB : Shrinkage convention is + for growth, - for contraction  
 : Qualities marked with \* have unreasonable finishing targets  
 : Estimates are given in good faith but without liability  
 : Yarn counts are given as Resultant for folded yarns  
 : Tightness Factor is  $\sqrt{\text{Tex}/\text{St.Len}}$  in cm

$\bar{x}$   
 C/3cm = 53.1) actual measurements taken on garments after 5W+T cycles  
 W/3cm = 33.1)

I I C - STARFISH 84 - MODEL PREDICTIONS

TABLE 41

1x1 Rib - singles, combed ring yarns  
 14g 24in 1056 needles  
 Winch dye (medium)

Targets are Finished Courses & Wales

12-APR-85 11:26

Average as knitted				Average as delivered				Shrinkage (5 W&T)	
Yarn	StLen	C.Len	Tness	courses	wales	weight	width	Length	Width
Tex	cm	cm	Fctr	3cm	3cm	g/sm	cm(T)	%	%
20.0	0.2870	303.1	15.6	48.3	31.0	178	51.1	-8.9	-8.2

NB : Shrinkage convention is + for growth, - for contraction  
 : Estimates are given in good faith but without liability  
 : Yarn counts are given as Resultant for folded yarns  
 : Tightness Factor is Root(Tex)/St.Len in cm

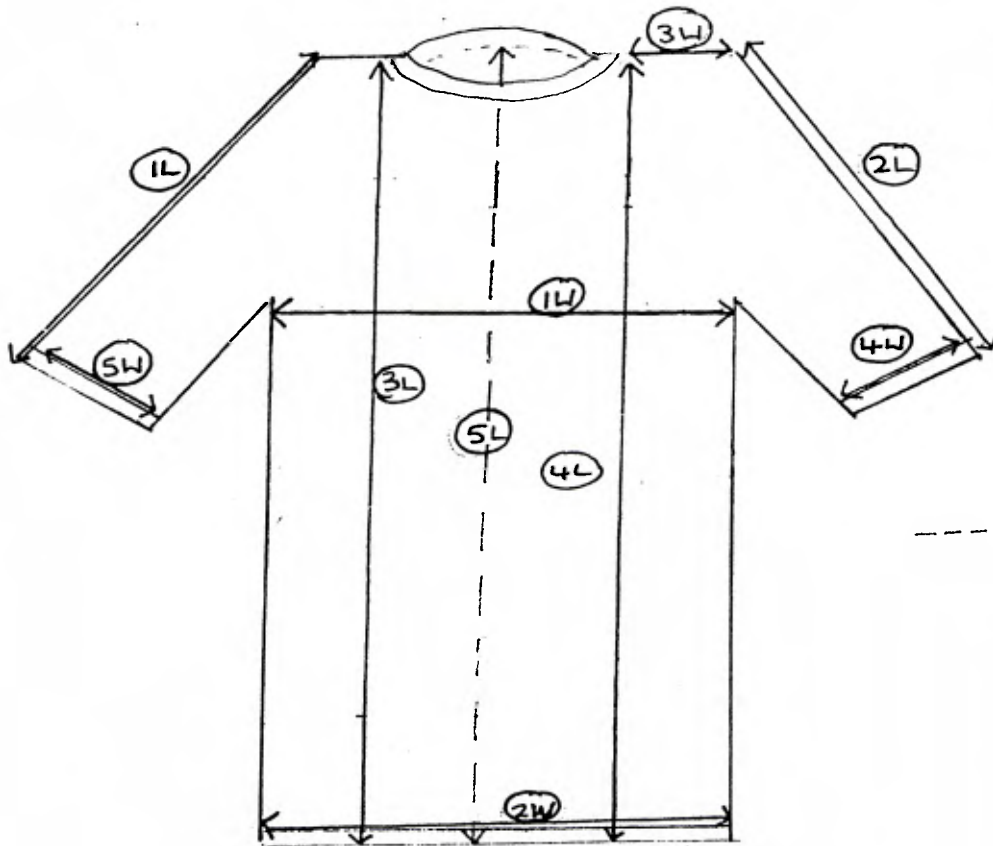
$\bar{x}$  % shrinkage

L = 9.1) Measurement taken off garments after 5W+T cycles  
 W = 10.1)

$\bar{x}$  % shrinkage

L = -11.8) Mean shrinkage measured on fabric. Research Record 189.  
 W = -10.5)

FIGURE 1

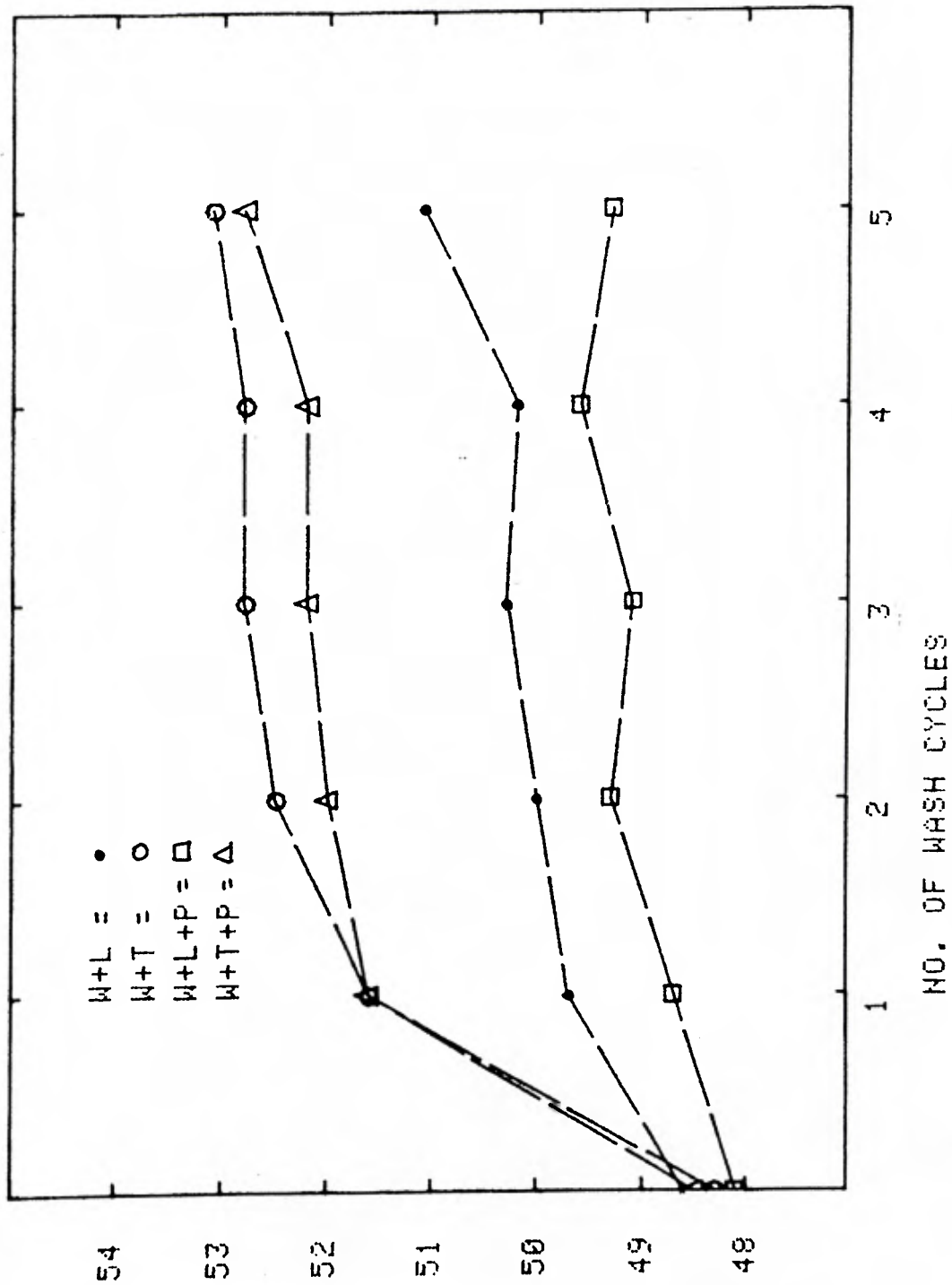


----- back measurement



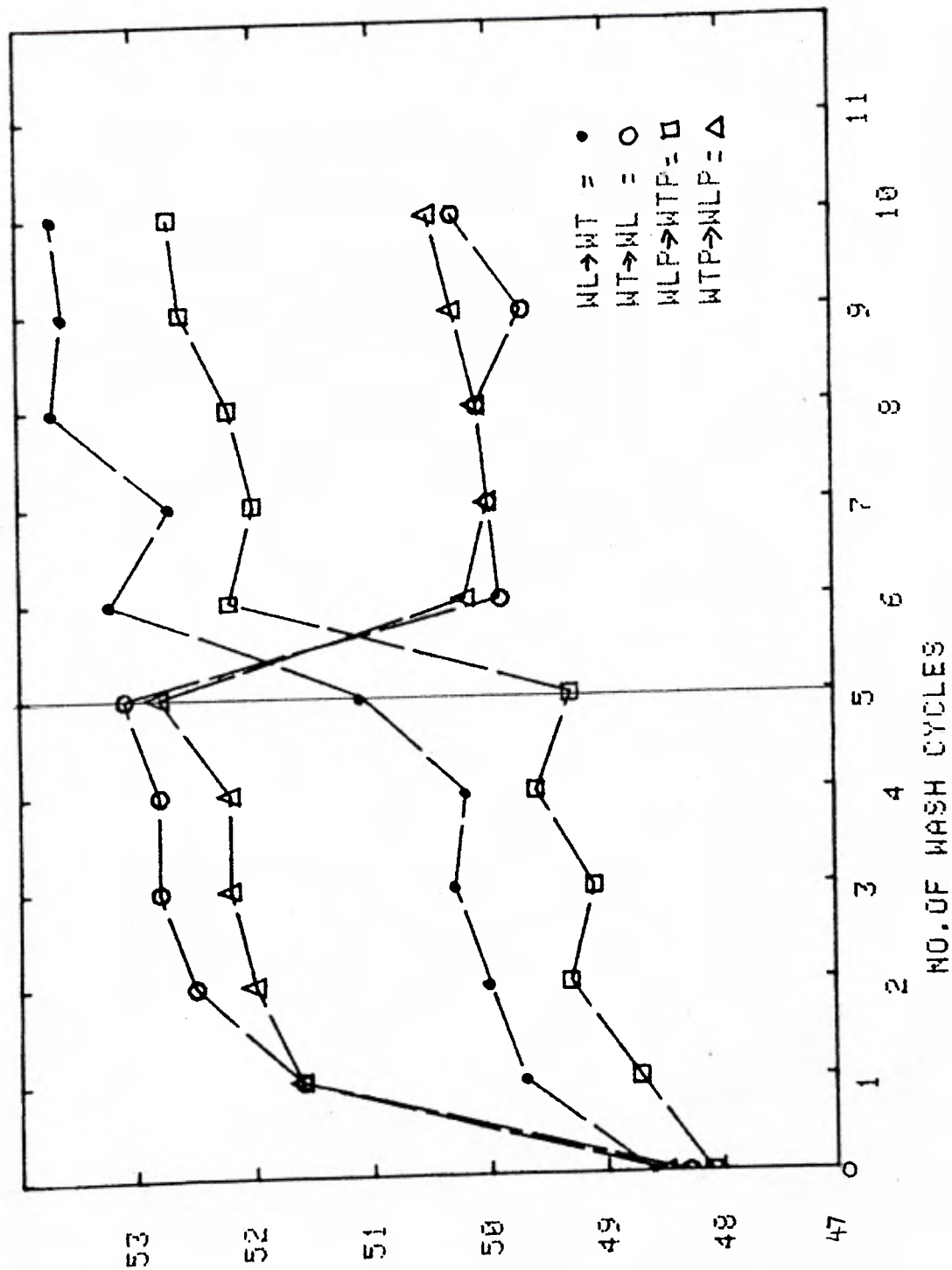
STORE GARMENT TRIALS - COURSES/3CM.

COURSES/3CM.



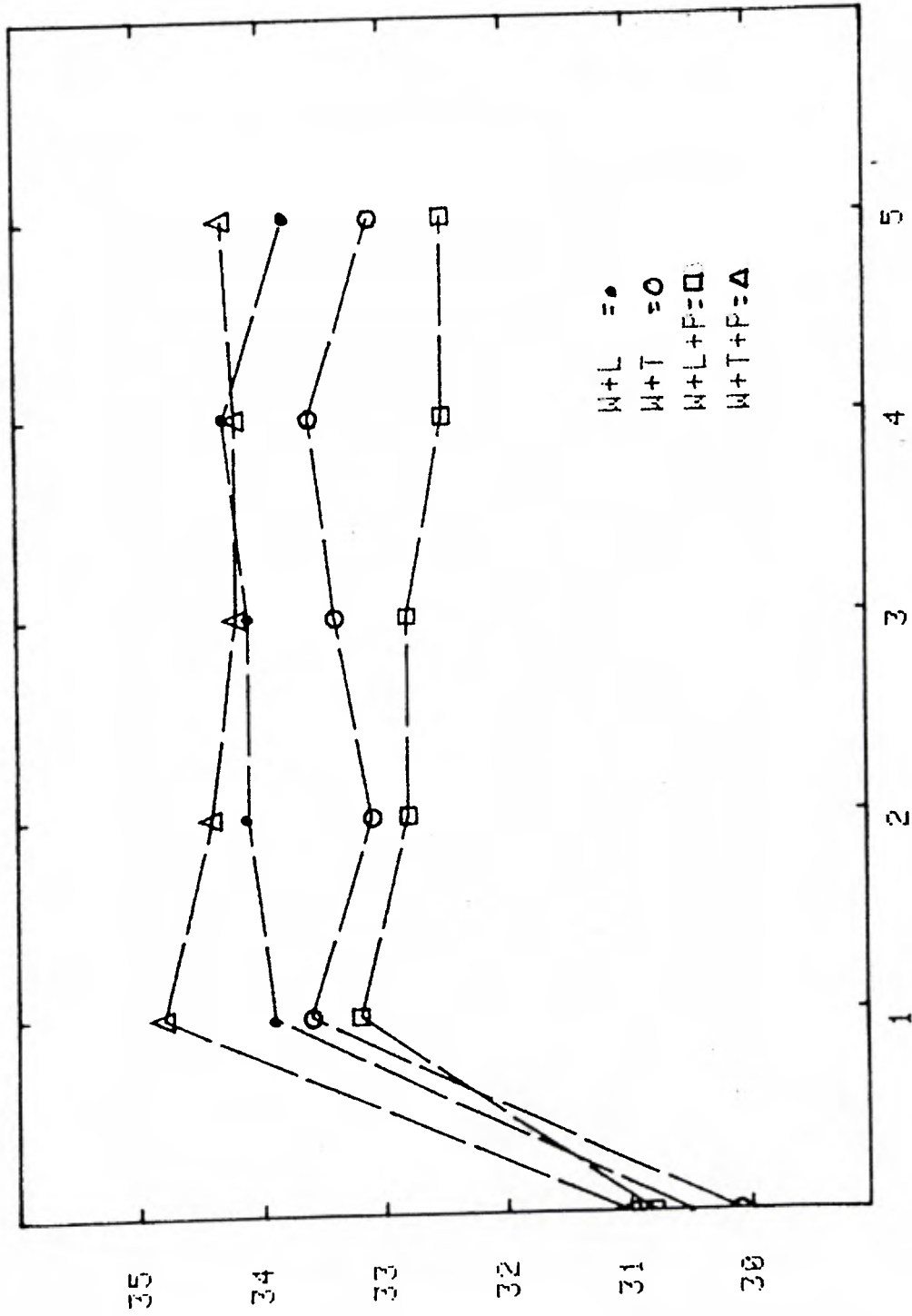
STORE GARMENT TRIALS - COURSES/3CM.

COURSES/3CM.



STORE GARMENT TRIALS - WALES/3CM.

WALES /3CM.



NO. OF WASH CYCLES

STORE GARMENT TRIALS - WALES/3CM.

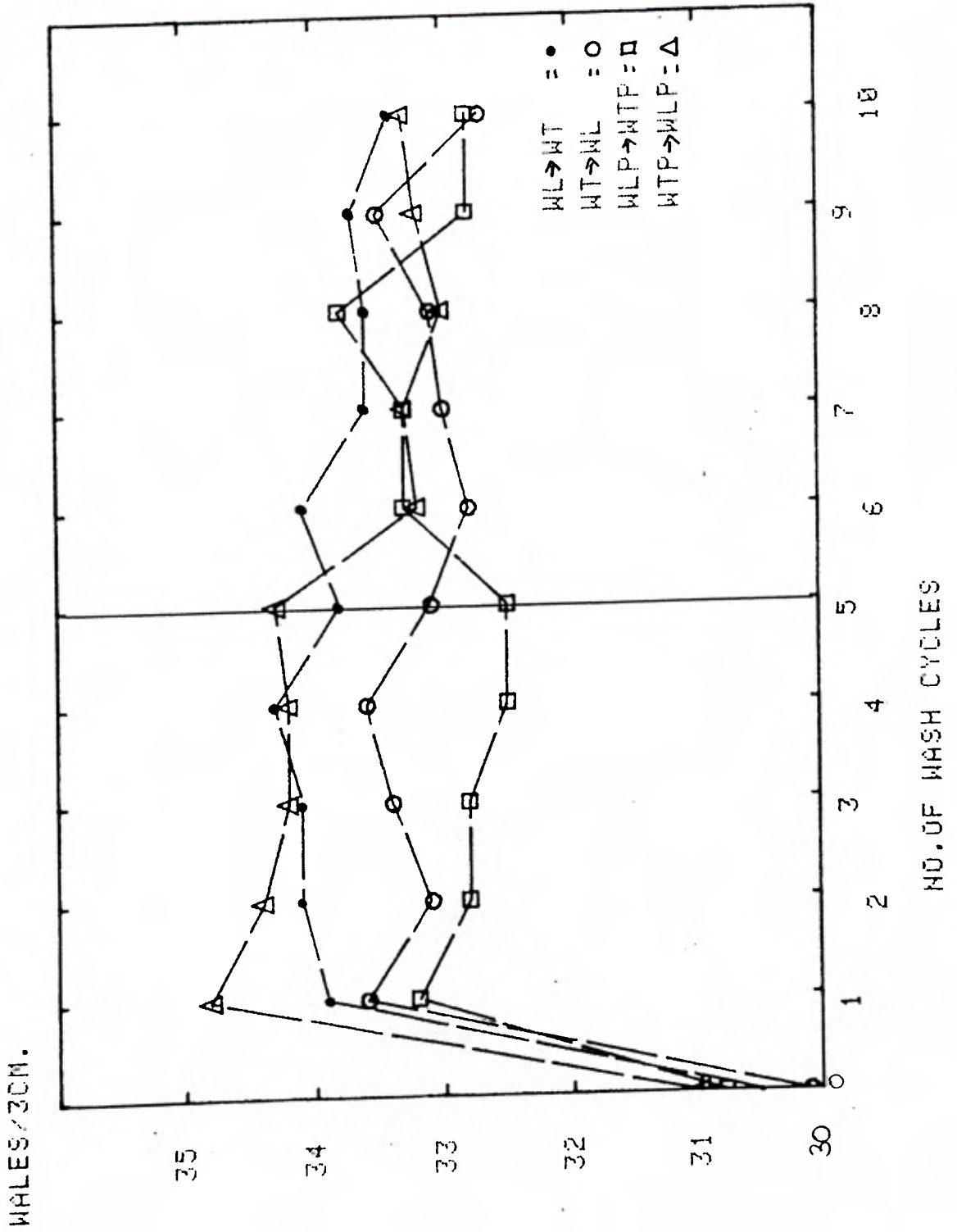


FIGURE 6

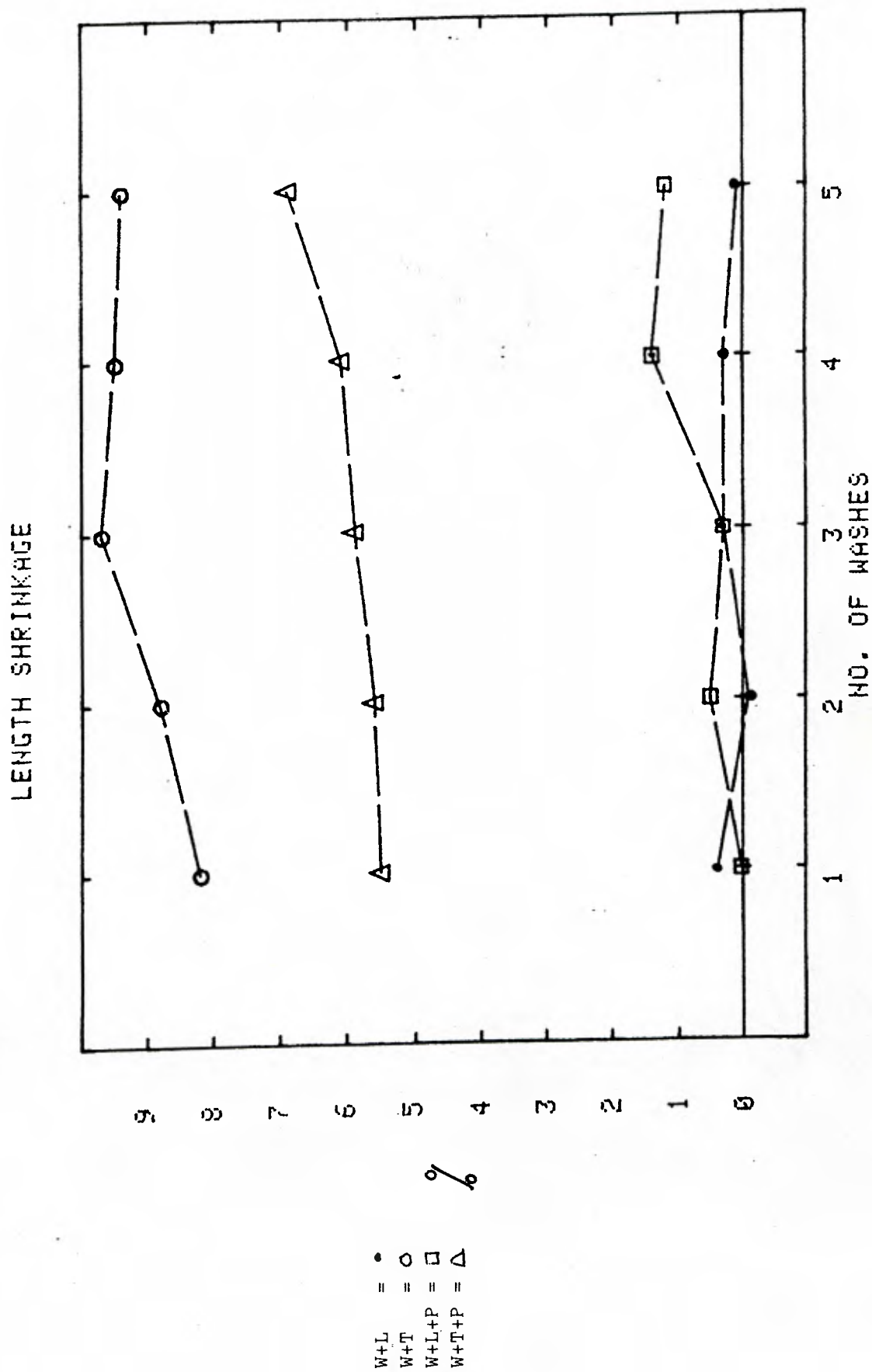


FIGURE 7

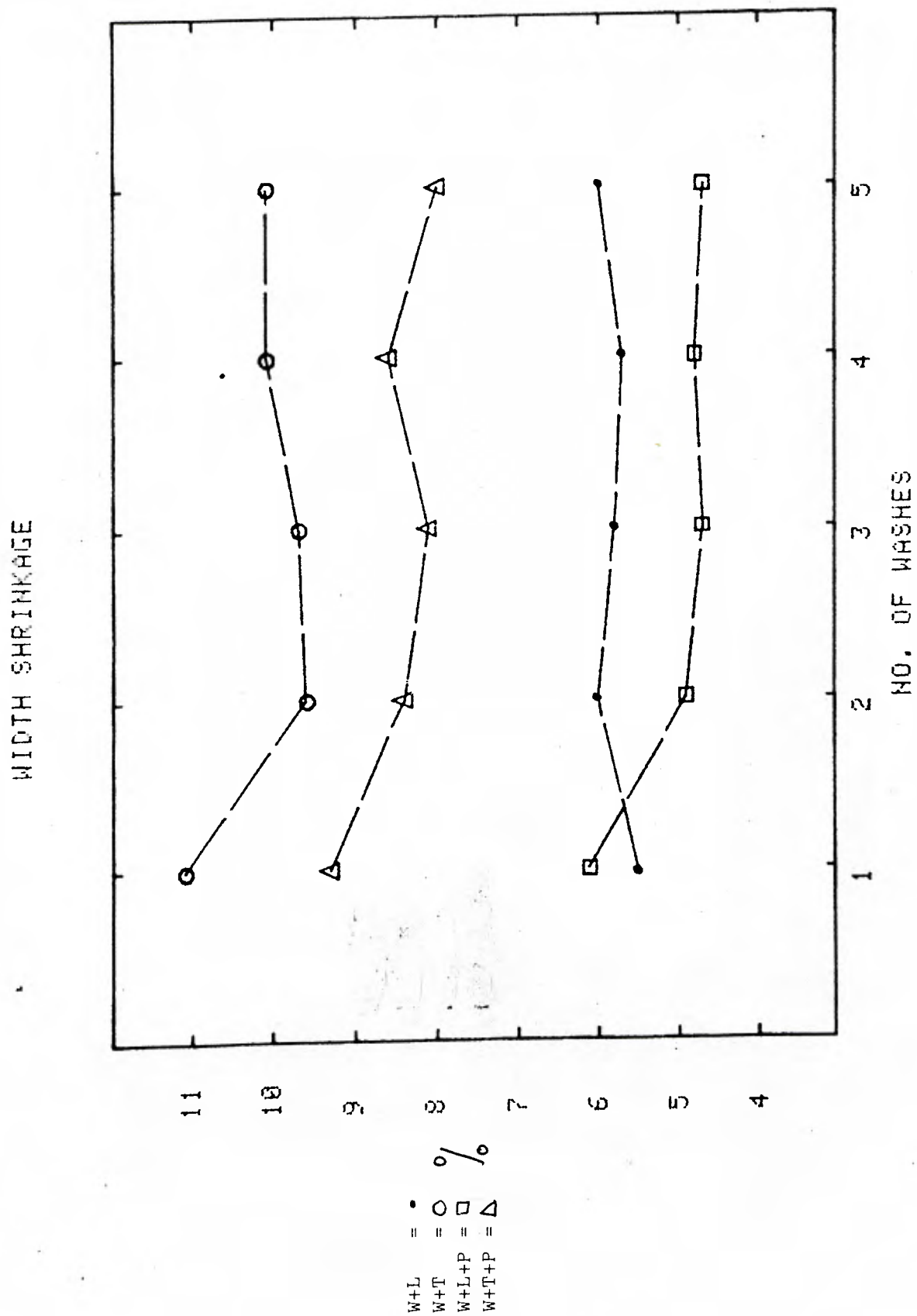
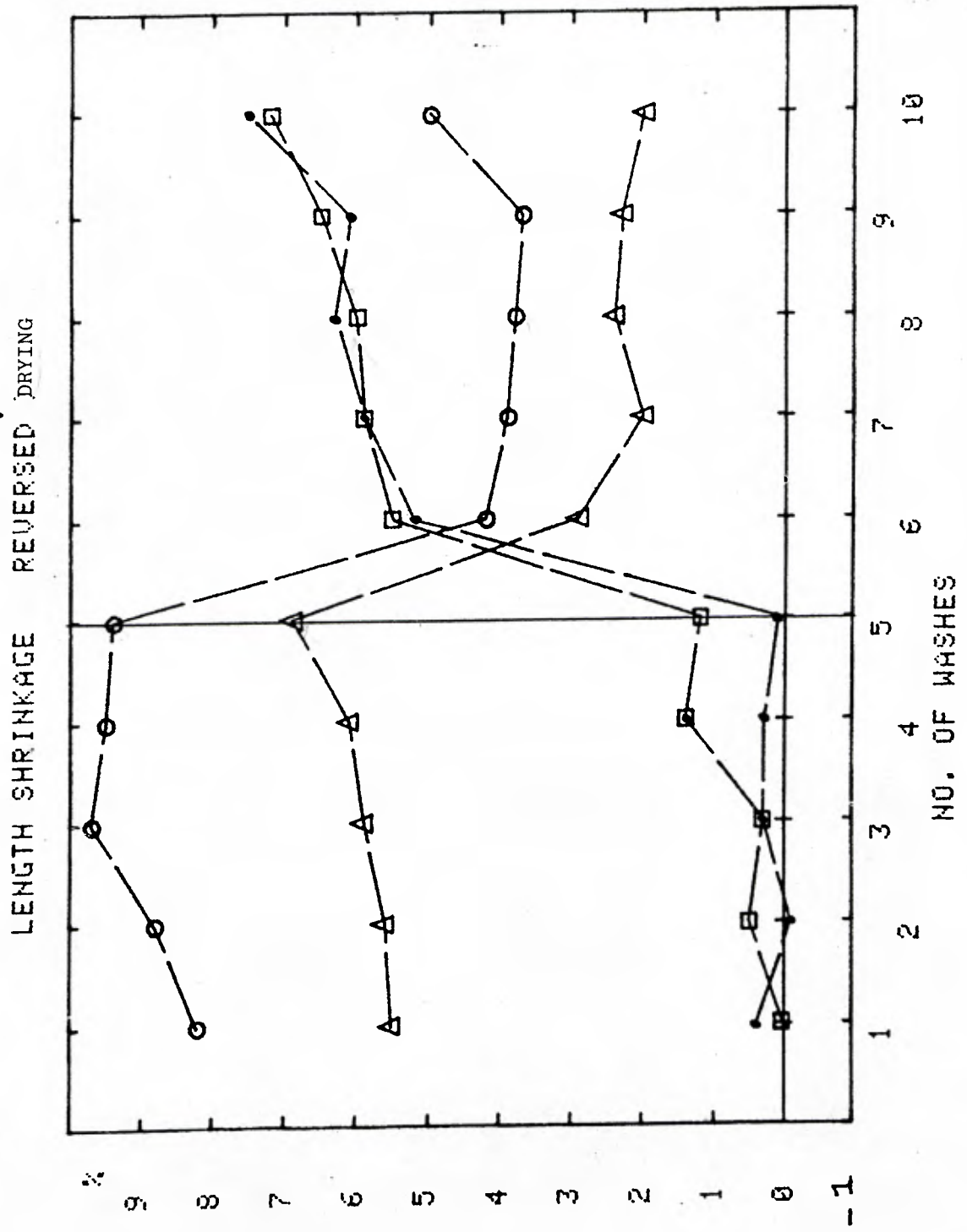


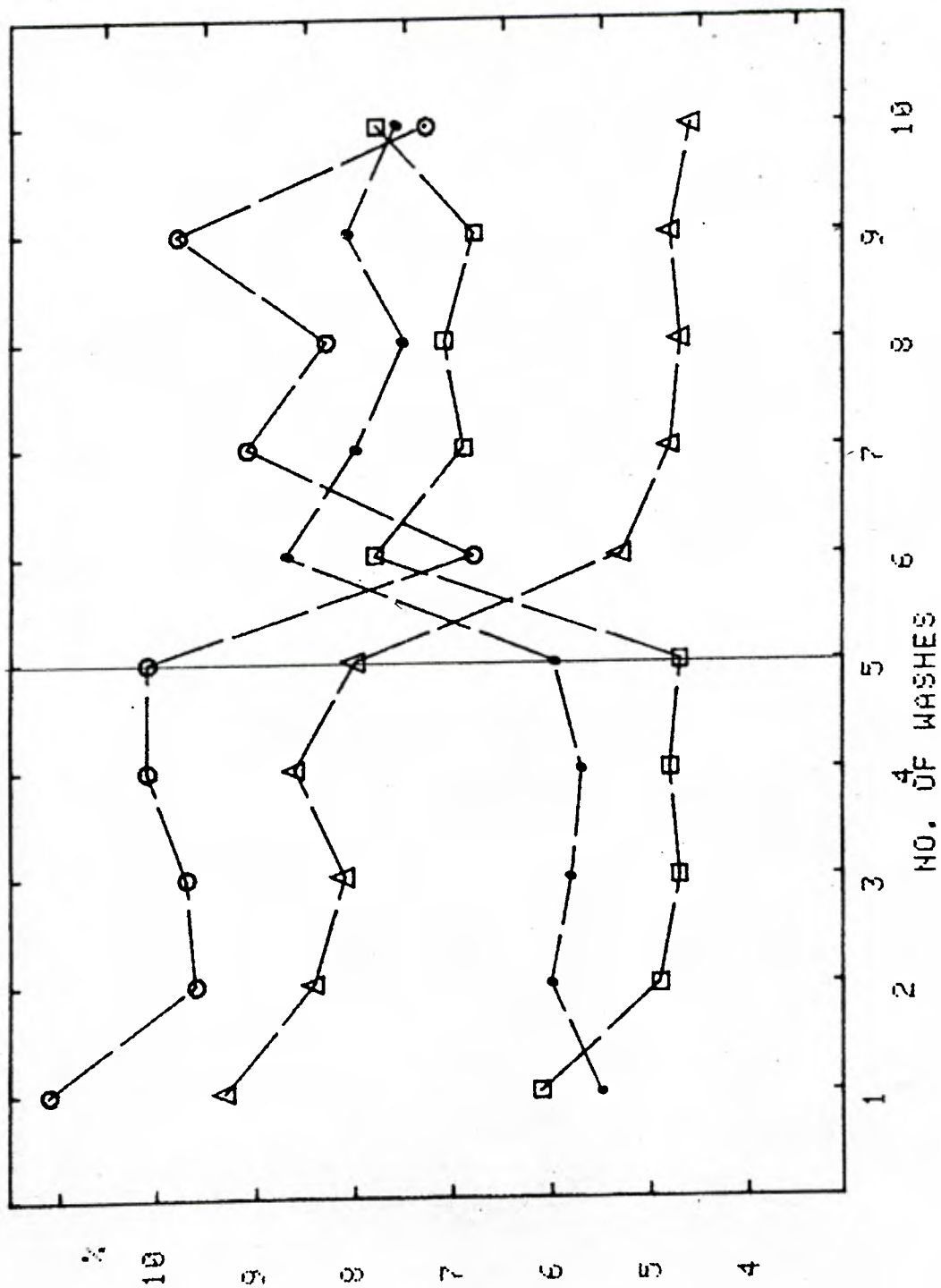
FIGURE 8



• = 5WL+5WT  
 ○ = 5WT+5WL  
 □ = 5WLP+5WTP  
 △ = 5WTP+5WLP

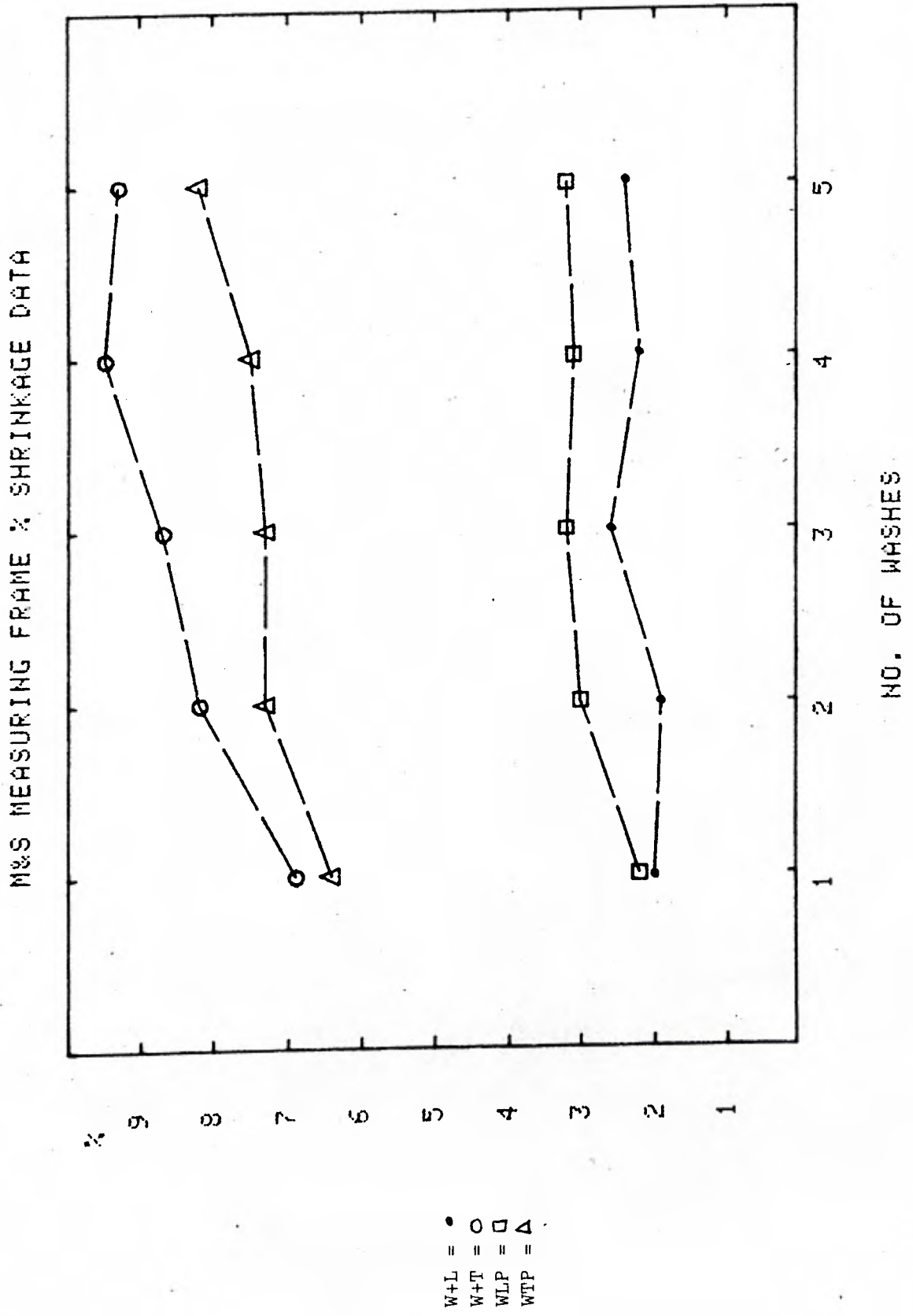
FIGURE 9

WIDTH SHRINKAGE REVERSED DRYING



• = 5WL+5WT  
 ○ = 5WT+5WL  
 □ = 5WLP+5WTP  
 △ = 5WTP+5WLP





M&S MEASURING FRAME % SHRINKAGE DATA

